APR. 8 1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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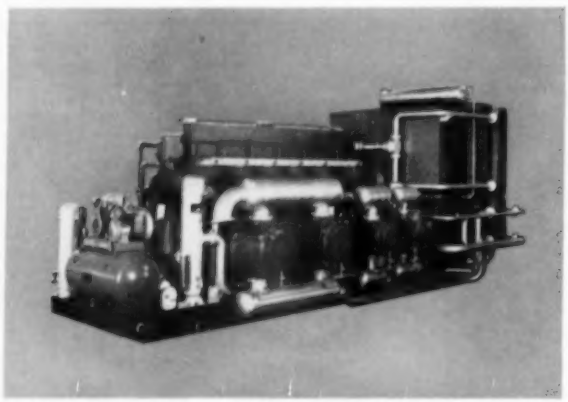
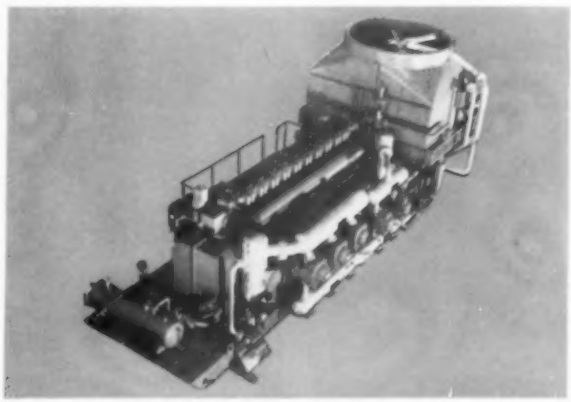
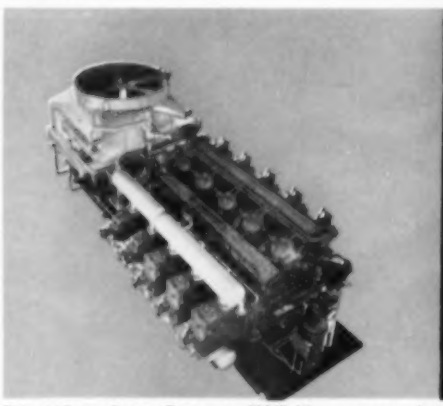


A 660 hp Ingersoll-Rand 12-SVG-2 compressor packaged by Southwest Industries, is in gas injection service in West Texas.



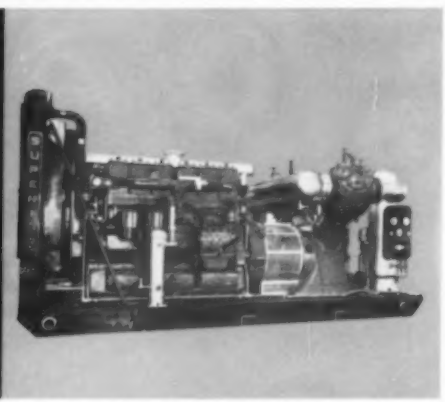
A Clark HMAB-10 compressor packaged by Southwest for a major oil company is in service for gas sales boosting in South Louisiana.



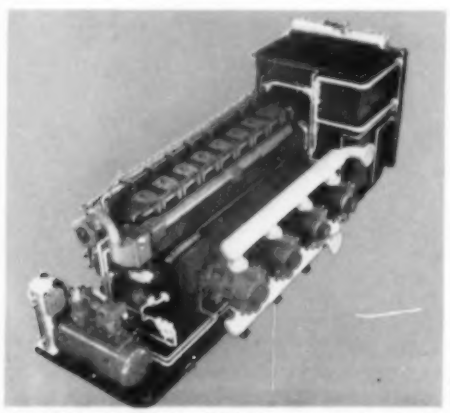
This 660 hp Cooper-Bessemer GMXD-10 compressor has been packaged by Southwest for gas gathering service on an offshore platform in South Louisiana.

SOUTHWEST INDUSTRIES, INC.

P. O. Box 19188, Houston 24, Texas



This 200 hp unit utilizing a Joy WB-12 compressor direct driven by a Superior 6G-510 Engine at 600 rpm was packaged by Southwest for propane service in a major oil company's gasoline plant.



This 750 hp Worthington SLHC-8 compressor in a Southwest Packaged Plant is being used by a major gas transmission company for pipeline boosting in East Texas.

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Also designers and manufacturers of Packaged Natural Gasoline Plants, Packaged Inert Gas Generators, Packaged CO_2 and H_2S Removal Units.

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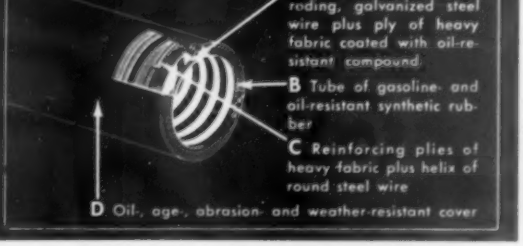
A Helix of flat, noncorroding, galvanized steel wire plus ply of heavy fabric coated with oil-resistant compound.
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INSIDE Slant

WILL COMPACT CARS HURT?

There seems to be a difference of opinion as to the effect compact cars will have on gasoline demand.

Last week at San Antonio, Max M. Roensch, of Chevrolet, told the Western Petroleum Refiners Assn. that by 1970 the compact cars could cut gasoline consumption by 7-billion gal. (page 25).

At the same time, R. O. Rhoades, chairman of Gulf Oil Corp., writing in a company house publication, stated:

"Because of the economy of the small and compact cars, people can be expected to drive them more, thus, in the end, using as much and possibly more gasoline than heretofore."

Rhoades wrote that Gulf expected gasoline use to continue to rise during the next five years. He forecast an increase of 17% in passenger car gasoline demand during the five-year period.

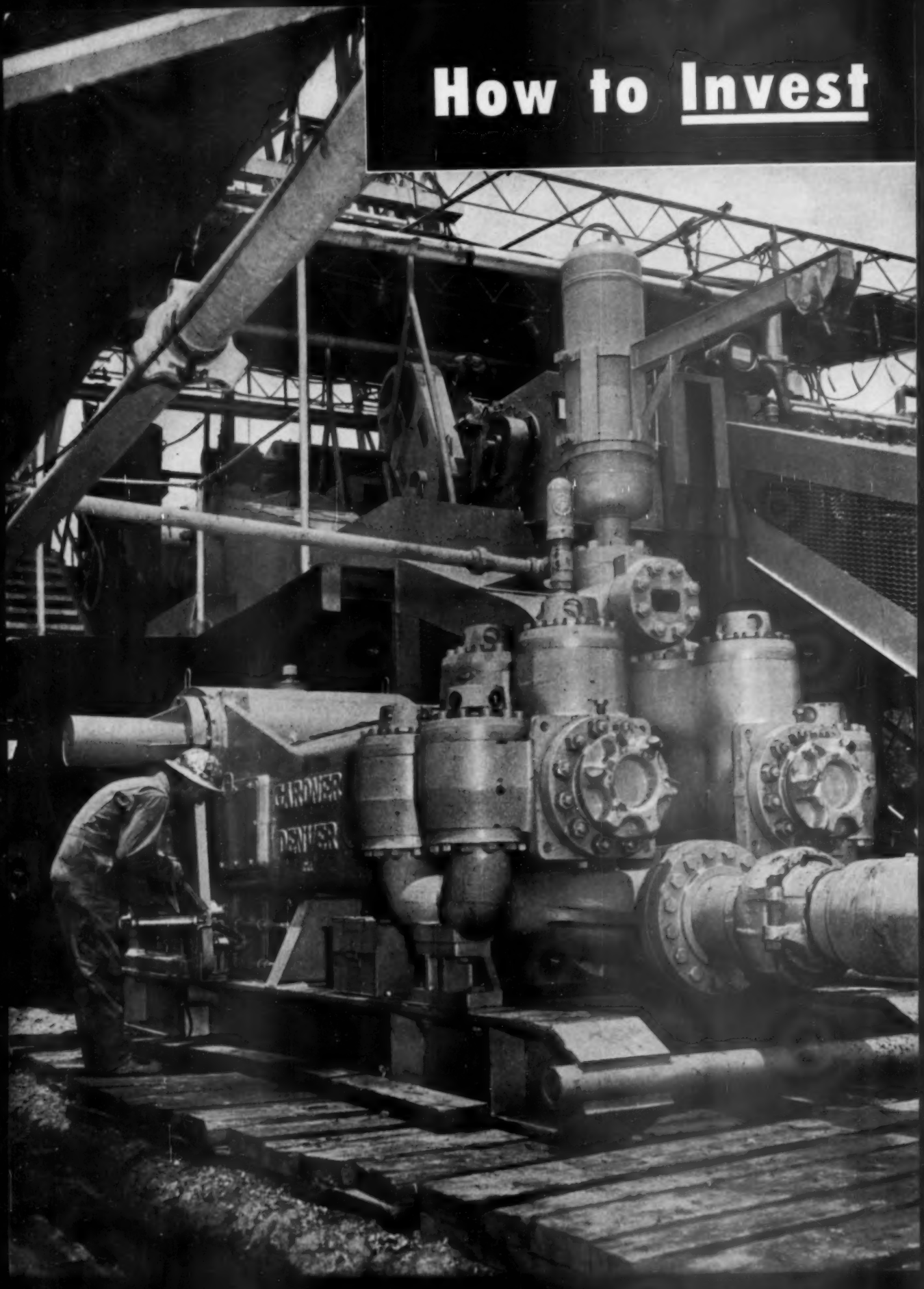
He also forecast a continued increase in truck and bus gasoline consumption.

What must be remembered is that it was auto prices, more than gasoline prices, that turned the public to compact cars.

This fact could lead to more two-car families and consequently greater gasoline consumption.

LeRoy Menzing
Editor

How to Invest



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Above — Ideco Full-View Mast. Ask for literature on Ideco Drawworks, Rotaries, Blocks, Masts and Rambler Rigs.

Below — There is real assurance in the rugged strength of J&L Wire Rope.

Gardner-Denver Mud Pump at work in Mississippi. Ask your J&L Supply man for illustrated literature. Parts stocked at near-by J&L Supply stores protect your Gardner-Denver investment wherever you drill.

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DEPT/Opinions

Views That

"Every satisfied engineer is a destructive one. The only constructive engineers are those completely unsatisfied with methods now being used. If engineers fail, the domestic oil industry and the U. S. independent will fail."

—MARION H. STEKOLL
President
Stekoll Petroleum Corp.

"The oil industry has admittedly been passing through a period of unfavorable conditions. Thus, there are those who are apt to say petroleum WAS a growth industry. They fail to recall that similar dislocations have come and gone in the past, and undoubtedly they will occur again in the future. Informed observers, taking the longer view, recognize petroleum as one of the most basic and resilient industries, inextricably woven into our economic fabric, and with dynamic potentials solidly based on a continuously rising per capita consumption of energy at home and abroad."

—P. C. SPENCER
Chairman
Sinclair Oil Corp.

"Don't think of your Canadian plants as U. S. subsidiaries, but as a Canadian company with U. S. shareholders . . . Once it becomes thoroughly understood that the real rulers of business are the customers and their governments, then I think a good deal of concern about where stock control is held will rapidly disappear."

—J. R. WHITE
President
Imperial Oil Ltd.

"Geologic and stratigraphic data from [Athabasca tar sands] wells indicate that the oil sands underlie at least 17,000 sq. mi., and may contain as much as 600-billion bbl. of oil in place. If as much as one-half of the Athabasca oil can be recovered, it will be equal to the presently known recoverable reserves of the world."

—W. J. TRAVERS
Vice-president
Richfield Oil Corp. (L.A.)

"Since 1950 the average distance driven yearly per car has declined 773 mi. To use other figures, in 1953 the average car consumed 686 gal., and this year it will use only 641 gal.

"All this is not happening because of a change in the climate, or in the character of our people. It is happening in part because we are failing to

Make News . . .

use the powerful, modern techniques of mass education for safety that could basically lessen the problem. It also is happening because other salesmen, who aren't hand-cuffed by the timidity of some of our negative thinkers, rolled up their sleeves and stole a whole hunk of our market. They unsold our former customers on weekend pleasure driving in favor of backyard living, and they're making more converts every day."

—CHARLES J. GUZZO
Senior vice-president
Gulf Oil Corp.

"We are convinced that earnings must be geared to lower operating costs. We are cutting costs in every reasonable way. We have set up individual profit centers where the control of the operation and its profits rests squarely with the manager, and his accountability and authority are clearly defined. We have established effective profitability techniques, with which we control our investments, as well as methods to measure the results."

—FRANK O. PRIOR
Chairman
Standard Oil Co. (Ind.)

"Many of those factors which contributed to an unsatisfactory year for Fluor [Corp., Ltd.], in 1959 will continue to affect our business operations adversely through at least the first half of the current fiscal year."

—J. R. FLUOR
Executive vice-president
Fluor Corp., Ltd.

. . . and Letters

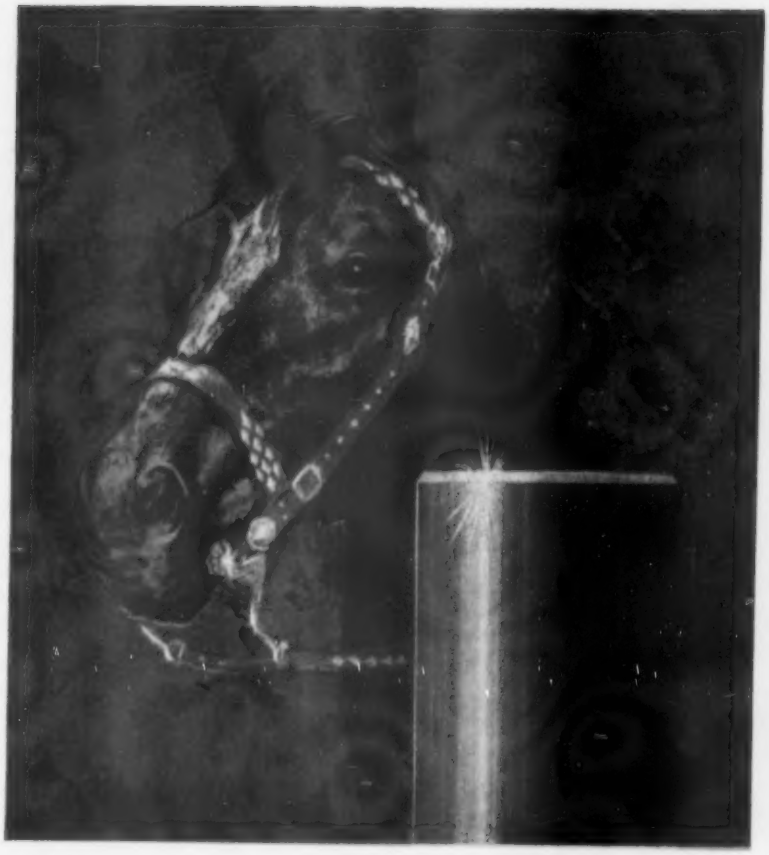
Dear Sir:

Your "What's New In Marketing" [PW—Mar.11'60,p31] includes an item that toll-road motorists buy 80% of their gasoline at stations located off of the toll roads.

When the service and cleanness of the toll road stations are on par with the major stations one finds along the highways, then—and only then—will a change in sales volumes be noted.

JOHN KASPER
Corpus Christi, Tex.

PETROLEUM WEEK will publish reader comments each week. Address letters to LeRoy Menzing, Editor, PETROLEUM WEEK, 330 W. 42nd St., New York 36, N. Y.



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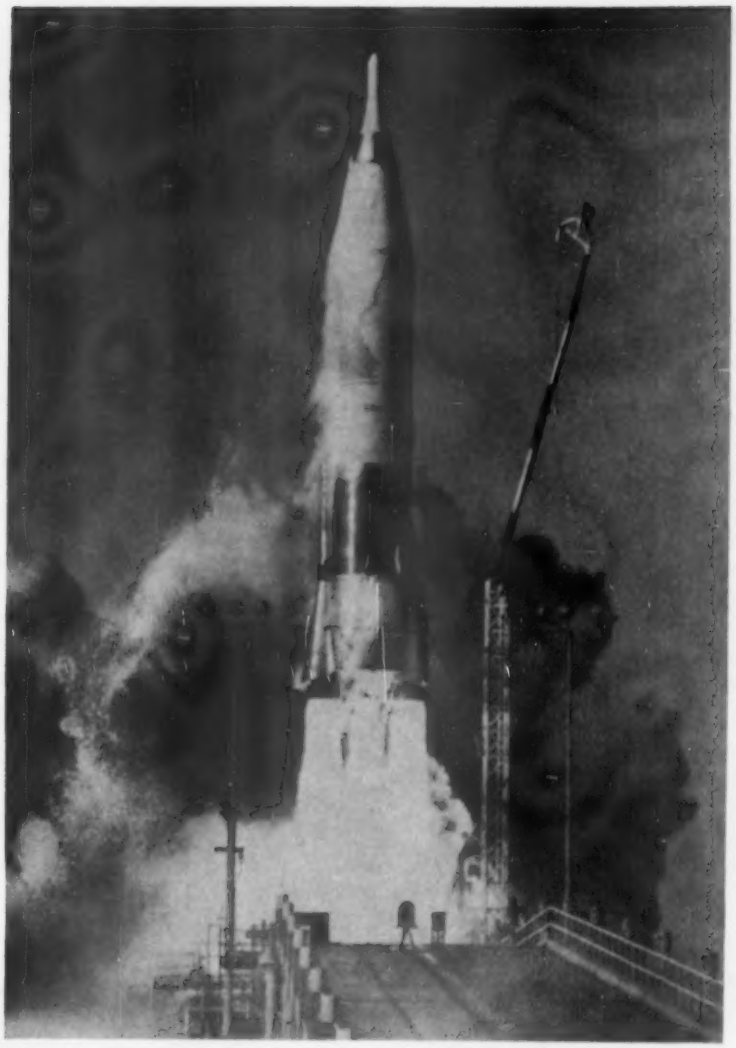

The mighty Atlas missile is built to withstand all extremes of temperature change, from searing heat developed in the combustion chambers to extreme low temperatures encountered hundreds of miles from the earth in outer space.

The same welding principle that insures strength and safety in this giant of the rocket age, insures a perfect completion every time in Rector casing heads. Rector casing heads utilize a precision ground joint seat fitted with a welding ring which is welded directly to the casing. An API ring gasket completes the exclusive *ring of steel* pioneered by Rector.

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Your pick of sturdy pick-ups, stakes, the station-wagon-type Town Wagon and cab and chassis for special bodies. G.V.W.'s from 5,100 to 20,000 lbs. Pick your power, too . . . from 113 to 202 horsepower in thrifty Dodge Sixes and V-8's.

If roads are a rarity where you operate, you'd best make tracks to your nearest Dodge dealer. He can give you fast delivery on the new Dodge Power-Wagon of your choice. Or on *any* of the 140 models in this year's Dodge truck line. On the road or off, you can

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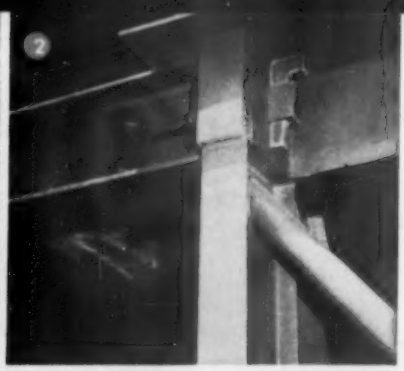

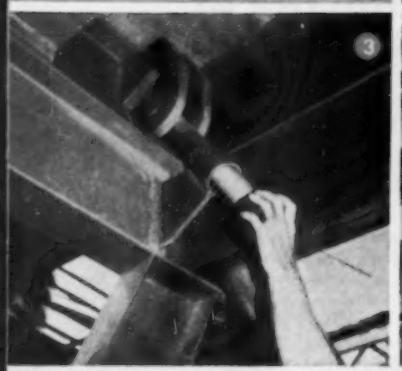

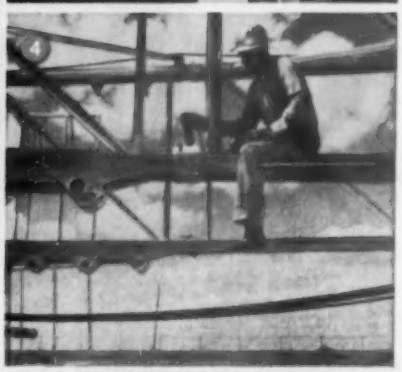

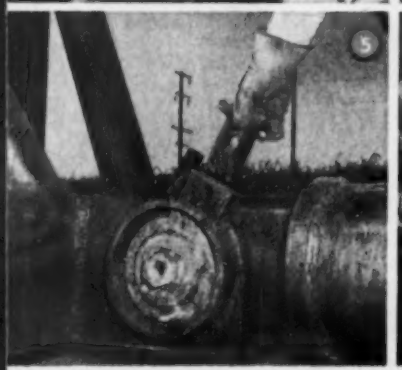

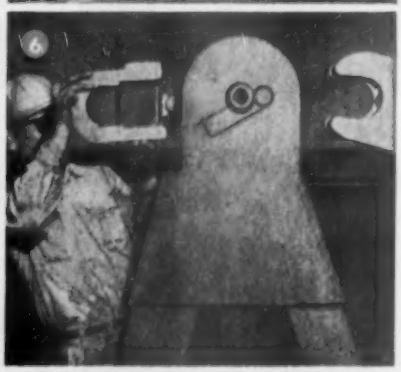

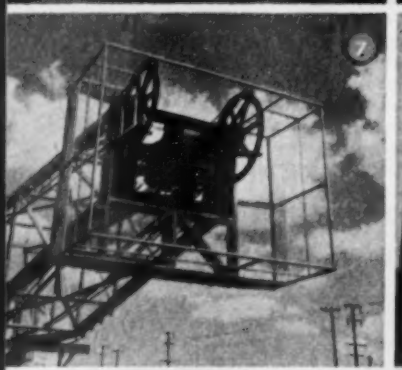

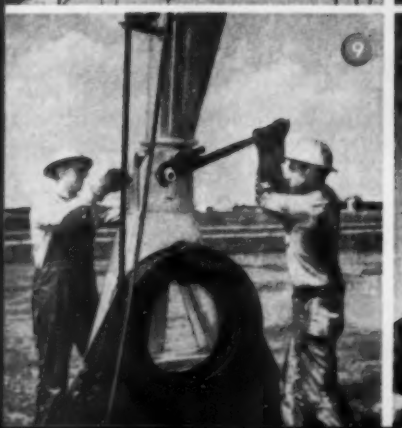

SEE . . . how exclusive features cut rig-up time on

"Oilwell" Lever-Lift Masts

1. The mast consists of five sections, which nest together on three trucks as shown. With substructure it moves anywhere in five truck loads.

2. When outside substructure sub-bases are unloaded on location, swaged pipe spacers drop easily into place and top spacer beams, with patented wedge-lock fasteners, snug beams and columns together.

3. The mast hinge frame atop the substructure is held securely in position by threaded tee-fasteners, self-contained in the upright columns of the substructure.

4. Patented mast-leg-lock connectors are used instead of bolts in assembling the mast sections at ground level. Leaf spring with nut handle holds each wedge securely in place.

5. Eccentric hinge pins (patent pending) pivot the tubular raising levers from the base corners of the substructure and keeper pins engage to maintain desired position.

6. Hinge pins atop the substructure are positioned in front of the draw works to provide over 480 sq. ft. of safe working space for the crew. The forked end of the mast moves into position under draw works power, and is secured by U-shaped fastener with locking bolt and nut.

7. Patented cross-over crown block runs the fast line and dead line outside the mast, equalizing leg loads and minimizing torsional strain. This arrangement also positions the traveling block with flat side facing and fast line away from the derrick man.

8. Patented raising system minimizes fast line pull from the draw works. Lifting levers (which become front legs) actually push the mast into upright position where an automatic spring-loaded wedge-lock, with over-travel stop, prevents the mast from being pulled over backward or falling forward. This lock must be released by hand before mast can be lowered.

9. The mast is quickly centered over the well by adjusting hinge pins in the two mast legs and the two lever legs. One man turns the eccentric pin while the other inserts a keeper at the desired position.

10. Owners agree that Lever-Lift Masts load and unload fast . . . go together fast . . . and tear down fast. They're designed to save you time and money. Contact your nearest "Oilwell" or Wilson Supply Company representative for the full story . . . or write for information.

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USS Oil Well Supply Division of United States Steel

Executive Offices—Dallas, Texas
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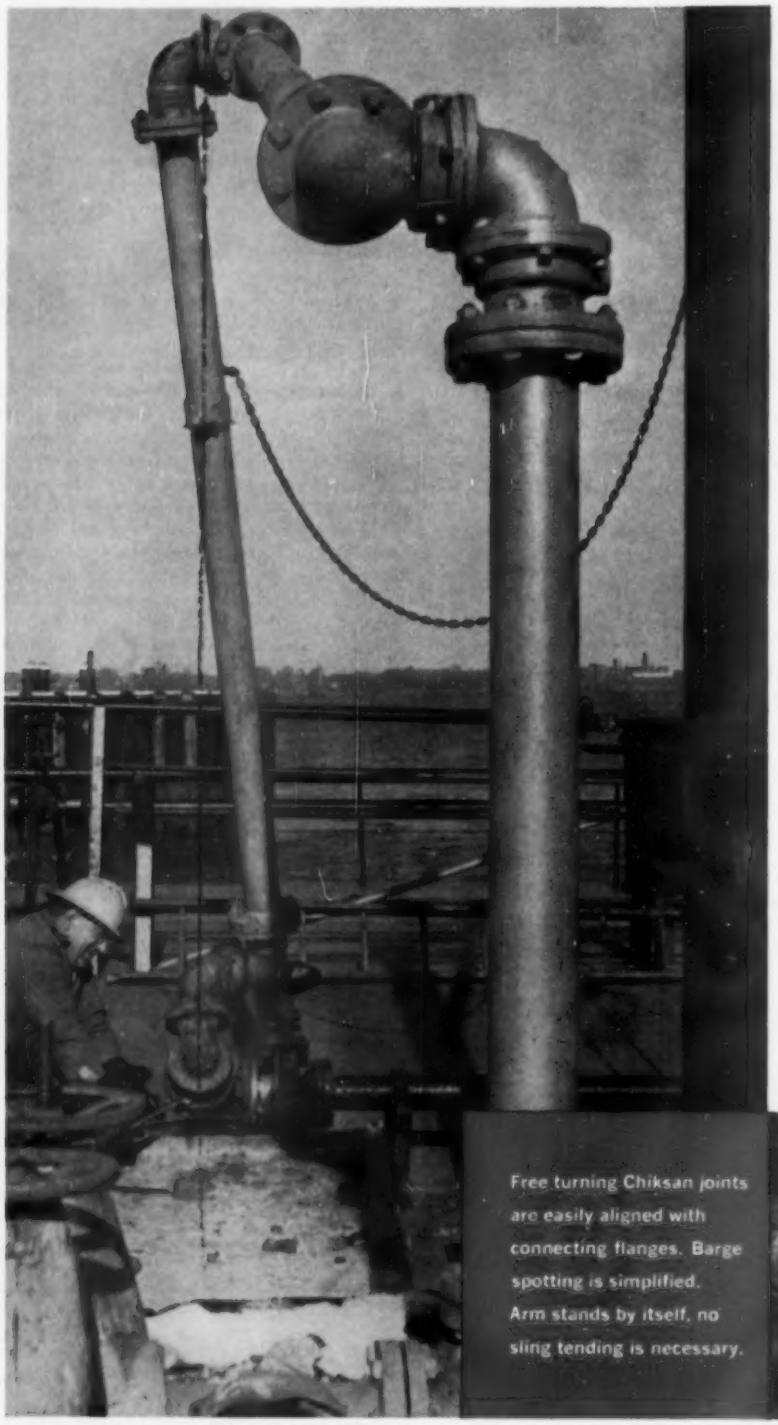
Speaking of handling corrosives—



THIS CHIKSAN LOADING ARM IS HANDLING 41 MILLION POUNDS OF SULFURIC EACH MONTH WITHOUT A LEAK

At best, handling corrosive sulfuric is a problem. And when the situation is compounded by need for a flexible line, the problem can become acute. This was the situation presented to Chiksan by a large chemical plant in the east. A flexible steel loading arm, incorporating new DS Series Chiksan swivel joints provided the solution. Utilizing DuPont's Viton A packings*, this loading arm is used to service barges bringing sulfuric to a processing plant.

As to results, the customer writes: "At the time the photographs were taken, the installation had been in service for six months without acid leaks and the only maintenance required was the normal lubrication of the Chiksan joints. An average of 41,000,000 gross pounds per month of sulfuric acid, 54° Baume, 60° Baume and Oleum was pumped through the installation during the six-month period."

Chiksan's DS Series swivel joints, developed especially for chemical, steam and hot gas service, are but one of the many swivel joints you can apply to solve your flexible line problems. There's a close-by Chiksan Field Representative ready to analyze your requirements and make recommendations. Write Chiksan today for his name and copy of our catalog.

*Reg. T. M. DuPont

Free turning Chiksan joints are easily aligned with connecting flanges. Barge spotting is simplified. Arm stands by itself, no sling tending is necessary.

CHIKSAN fmc

A SUBSIDIARY OF FOOD MACHINERY AND CHEMICAL CORPORATION

#60-51

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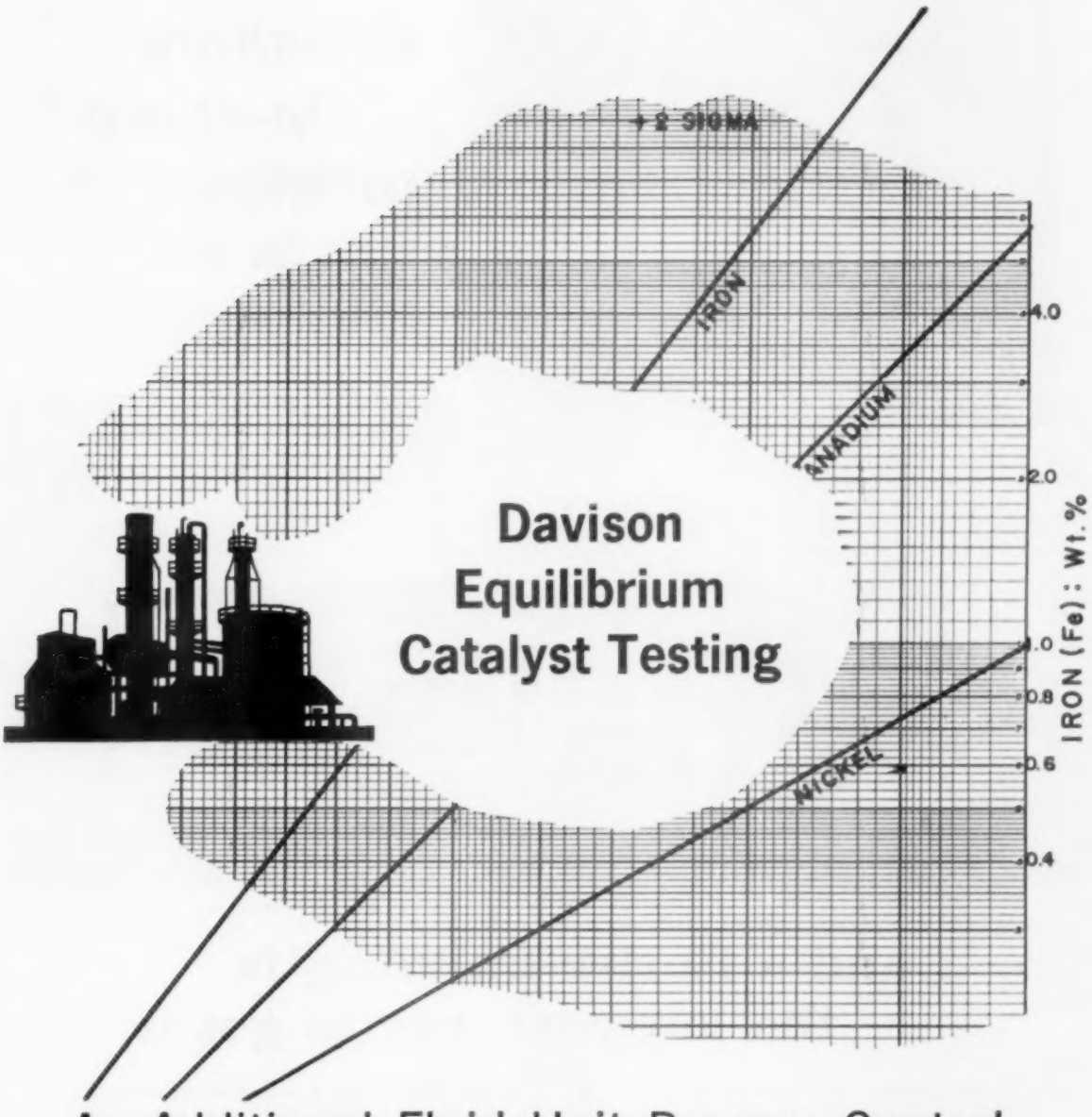

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Improve *conversion—selectivity—regeneration—fluidization* with the aid of this valuable Davison service. More than half of the fluid unit operators in North America rely on Davison Equilibrium Catalyst Testing. Find out how you can benefit. Ask your Davison representative or write Department C-04.

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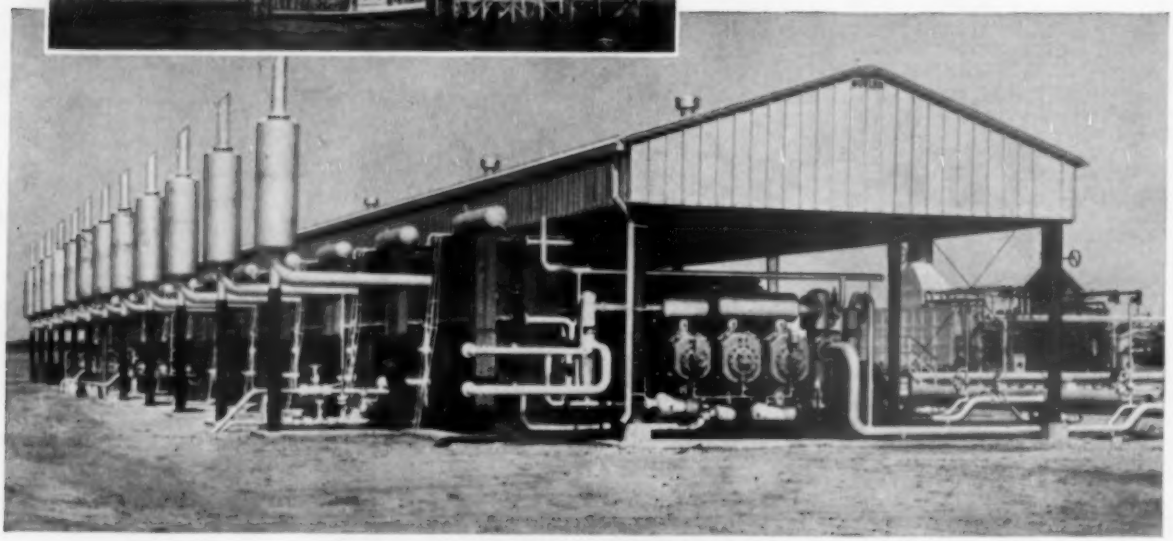

Butler building over packaged compressors, at Continental Oil Co., Short Junction plant, Oklahoma

...and a Butler building is the low-cost way to get it

From Canada to the Gulf of Mexico, men in the oil and gas industry have found that it just doesn't pay to use cheap, "jerry-built" structures to protect valuable equipment and supplies. Such buildings might collapse under heavy wind or snow loads. Or they can leak and require constant, costly maintenance.

On the other hand, Butler buildings have earned the reputation of being the lowest-cost top quality shelter and storage structures.

First of all, Butler's rigid frames form a sturdy, structural frame of steel designed to support heavy loads. And the clear-span design makes it easy to enclose even the largest, bulkiest equipment without using columns or trusses that might interfere with or block movement.

Butler roof and wall panels are die-formed to fit tight, seal out weather and wind. Available in galvanized steel or aluminum they require little maintenance and are fire safe.

As for cost, thanks to Butler's mass-production economies, Butler buildings are the lowest-cost way to build well. For full details contact your local Butler Builder. He's listed in the Yellow Pages under "Buildings" or "Steel Buildings." Or write directly to us.

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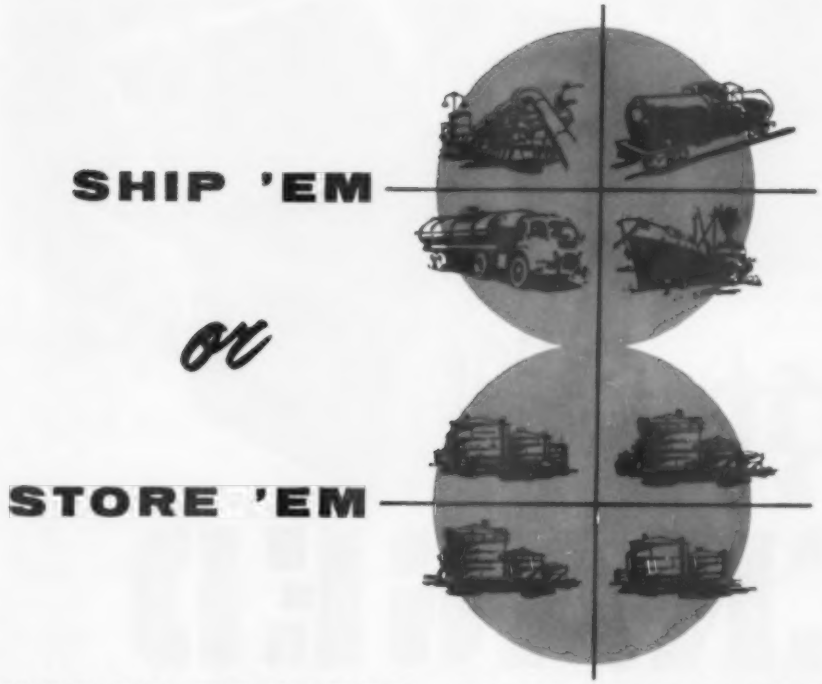

NALCO-TREATED FUEL OILS STAY FRESH!

Get rid of the hurry-up-and-sell pressure caused by unstable fuel oils that darken and sludge up when stored or shipped any distance. New Nalco 303-AC is the fuel oil dispersant-stabilizer that gives you *best* control of sludging tendencies—keeps fuel oils refinery-fresh, bright, and sludge-free even when shipped thousands of miles and stored for months.

Ask for product information on this new chemical for distillate fuels. It is available promptly from your Nalco Representative, or from Nalco direct.

National Aluminate Corporation is now

NALCO CHEMICAL COMPANY • 6300 West 66th Place, Chicago 38, Illinois

Subsidiaries in England, Italy, Mexico, Spain, Venezuela and West Germany
In Canada—Alchem Limited, Burlington, Ontario

Fuel oil at *left* is fresh from refinery, bright and clear. *Center*, Nalco-treated oil is bright and sludge-free after four months. *Right*, untreated sample in four months time has darkened considerably, already begun to sludge.

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FORGED STEEL FITTINGS, FLANGES and UNIONS

Complete product identification and data on label attached to carton.

Vogt modular designed cartons give added handling and storage space economies. All dimensions are in multiples of 3 inches.

for MATERIAL HANDLING ECONOMY

1 Easy Inventory Identification

2 Easy Handling

3 Protection Against Damage

Handling and inventory costs are held to a minimum with Vogt modular packaged forged steel fittings, flanges, and unions. The small cartons, of restricted weight, are appreciated by the distributor and user alike for their easy handling and the protection given the products against damage.

The label attached to each carton completely describes and pictures the product and gives the quantity, size, end type, pressure, and catalog number.

Write for Folder PF-1 for complete data on quantities and weights of the items as packaged in various sizes of cartons.

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60-Second Summary / WHAT'S HAPPENING IN OIL

April 8, 1960

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Only one hurdle remains before 1-billion cf/d of Canadian gas starts entering the U.S. Canada's National Energy Board approved five export permits, four of which must still get the Federal Power Commission's O.K. . . . p. 23

•

Venezuela is approaching the point of diminishing returns from petroleum operations. The downward pressure on world prices and the loss of export markets has cut into government and oil companies' revenues. . . . p. 30

•

"Maximum chaos" would be the end result of the proposed minimum allowable of 50 b/d per well in Oklahoma, a producer spokesman says. . . . p. 25

•

A revamped rig is enabling a California drilling contractor to cut costs on moves and rig-ups. The changes eliminate the need for cranes and A-frames. . . . p. 55

•

Many refiners say new tests are needed for paving asphalt to reflect performance data. Existing specifications, they argue, are not directly related to performance. . . . p. 66

•

Northeast British Columbia is looking better all the time as a major gas province possibility. An impressive number of wildcats and extensions were completed in recent weeks. . . . p. 39

•

Ford Motor Co. is pressing oil companies to change their classifications of motor oil. Some companies have modified their labels, but so far API's Lube Committee has declined to change its service designations. . . . p. 95

•

Labor problems are piling up for U.S. tanker operators. "Intimidation" charges have been filed by a new union seeking to organize crewmen on U.S.-owned foreign-flag ships. . . . p. 82

•

Union Oil is pushing a 22-hole drilling program in California's Brea-Olinda field to protect its mineral rights. Encroaching home and industrial development forced the move. . . . p. 45

•

Maruzen Oil will build the first foreign refinery for a Japanese firm, in Singapore, giving the company an entry into Southeast Asian Markets. . . . p. 77

•

Plain river water used for cooling causes the most corrosion problems in a Canadian rubber plant—more severe than those caused by sulfuric and hydrochloric acids. . . . p. 71

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK

April 8, 1960

Federal Power Commissioner William Connole is running into serious opposition for reappointment this year. The attempt appears to be to replace Connole, an independent politically, with a Democrat—possibly a staff member of the Senate Interstate & Foreign Commerce Committee, which must clear an FPC appointment. So far the White House hasn't picked a successor to the late John B. Hussey. The nominee cannot be a Republican since the commission now has its limit of three Republicans.

•

Purchaser proration of crude is spreading in Oklahoma. Last week Rock Island Oil & Refining Co. cut its take in the state to 80% of its January purchases, the same percentage reduction that Indiana Oil Purchasing Co. made in all areas of the nation in March. This week another major buyer said it would commence prorating its take in Oklahoma in mid-April unless it receives "enough relief" through a reduction in allowables at the Apr. 12 hearing.

•

Crude prices moved both up and down last week. In New Mexico's San Juan Basin, El Paso Natural Gas Products Co. increased its flat price for sweet and sour condensate by 10¢ a bbl. The new sweet condensate price is $2.60 a bbl., and the sour posting $2.18 a bbl., both effective from Apr. 1.

On the down side, Premier Oil Refining cut its postings in East Texas and West Central Texas by 10¢ a bbl., a reduction in all buying areas by the Western Natural Gas Co. division. Premier's new flat price in the East Texas field is $3.15 a bbl., compared to $3.25 paid by most buyers and $3.05 posted by Atlantic Refining. It buys 4,300 b/d in the field. Premier's new top posting in West Central Texas is $2.91 a bbl. It buys about 10,000 b/d in that area.

•

The California legislature passed a bill to require devices on vehicles to control exhaust fumes. Approval by Gov. Edmund G. Brown is expected.

•

Mechanical difficulties delayed an attempt to complete the first quintuple producer this week. The operator plans to try a completion of the test, located in the Eugene Island area off the Louisiana coast, through five strings of tubing, strapped together.

•

Cuba tightened its squeeze play on international oil companies this week by setting up its own retail marketing system. The National Petroleum Institute will begin distribution of products in May through outlets confiscated previously from a Cuban independent chain. A terminal will be set up at Havana to supply the entire island.

Russian crude, and possibly some Egyptian and Mexican as well, will be processed in a small refinery that's to be enlarged. This plant has a capacity of 6,000 b/d, and was taken over by the government last year.

The wide range of physical properties available in Eastman's series of low-molecular-weight Epolene resins provides formulating flexibility never before possible. With the addition of three new resins (Epolene LVE, HDE and HD), you can now choose from among seven different types to improve your wax formulations or to develop new ones.

Epolene polyethylene improves the properties of paraffin blends in these ways:

- reduces flaking
- increases toughness
- increases abrasion resistance
- improves adhesion
- improves resistance to thermal shock
- increases mileage
- raises blocking temperature
- improves gloss

Each type of Epolene polyethylene contributes, to a greater or lesser degree, to the improvement of each of these properties. Thus, through selective blending, you can formulate waxes of optimum performance for your equipment and service.

New and expanded production facilities at Longview, Texas, assure the immediate availability of all Epolene resins.

Epolene E *oxidized* • In general, the oxidized Epolene resins improve the adhesion of paraffin blends to a greater degree than do the non-oxidized types. Among the oxidized types, Epolene E is superior in this respect, and in its ability to increase the softening point of paraffin blends.

Epolene LVE *oxidized* • When good adhesion and a low cloud point are important, Epolene LVE should be considered as a component in paraffin blends.

Epolene HDE *oxidized* • This is the first high-density, oxidized low-molecular-weight polyethylene available. Epolene HDE is suggested for use in wax blends that must exhibit good adhesion and mileage.

Epolene N *non-oxidized* • Epolene N contributes maximum hardness and high tensile strength to paraffin blends. It also enables coaters to obtain excellent mileage.

Epolene LV *non-oxidized* • Epolene LV is one of the easiest to handle among the low-molecular-weight polyethylene resins, because of its low melt viscosity. Paraffin blends containing Epolene LV also exhibit low viscosities at application temperatures, and relatively low cloud points.

Epolene HD *non-oxidized* • Epolene HD is the hardest of all the low-molecular-weight polyethylene resins, yet is easy to handle due to its low melt viscosity. It produces paraffin blends that have high softening and blocking temperatures.

Epolene C *non-oxidized* • Epolene C, a unique polyethylene resin, has the highest molecular weight and lowest density of all the resins in the Epolene series. Contributing maximum tensile strength in conventional blends, Epolene C is also being used to advantage in coatings in which it is the principal component.

If you are using low-molecular-weight polyethylenes in your wax formulations, or are considering their use, investigate the complete Epolene series. Your Eastman representative will gladly explain the advantages of each of the resins in the series and will show you how to realize the most profitable use of them in your formulations. Write today for more information.

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Chicago; Cincinnati; Cleveland; Detroit; Framingham, Massachusetts; Greensboro, North Carolina; Houston; New York; Philadelphia; St. Louis. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

Eastman now offers paraffin formulators 7 basic types of polyethylene

New Epolene resins broaden formulation range of paraffin waxes

Physical Properties of 2% EPOLENE-Paraffin Blends
(130° AMP Paraffin)

PROPERTY	EPOLENE TYPE						
	E	LVE	HDE	N	LV	HD	C
Density *	0.938	0.939	0.956	0.928	0.925	0.938	0.907
Viscosity, cps.	4.8	5.5	5	5.2	4.3	5.4	5.2
Ring and Ball Softening Point, °F.	145	138	140	140	140	145	139
Penetration Hardness, 0.1mm.	15	11	11.5	15.6	13.9	13.9	13.3
Adhesion, Psi.	13.5	13.5	11	8	8.5	5.5	10.5
Cloud Point, °F.	174	165	183	185	176	190	170
Consumption, G./100 in.²	3.79	4.49	3.29	3.69	3.86	4.71	4.32
Tensile, Psi.	455	435	280	470	465	355	470

*Density of unblended Epolene

Epolene®

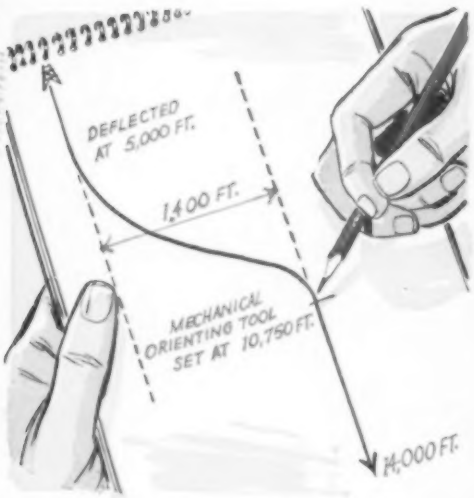
EASTMAN low-molecular-weight polyethylene resins

ANOTHER **HOMCO**
DIRECTIONAL DRILLING
SUCCESS REPORT

Need a Road Map 14,000 Feet Down?

Gulf Coast Operator reports:

"Homco's Slim Hole Survey Instrument was a real time and money saver on this directional job. We dropped this "Go-Devil" type instrument 63 times, from 10,000 to 14,000 feet with good results."



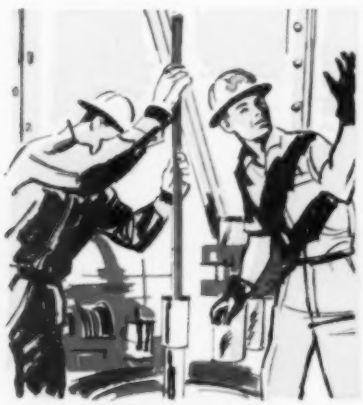
1. On this hole we had to go straight down to 5,000 feet, then offset 1,400 feet and hit our target area at 10,750 feet, then dig a straight hole to 14,000 feet.

NEED THE ANSWER
TO A DIRECTIONAL DRILLING PROBLEM?
HOMCO HAS IT!

HOMCO

DIRECTIONAL DRILLING

HOMCO ALSO OFFERS



2. One of our problems was that we did not have enough wire line to go below 10,000 feet. Another was that on our 2⅞" drill pipe, we were using tools that had only 1½" ID, and the survey instrument had to be dropped through this small opening.

3. We used the Homco Slim Hole Survey Instrument 33 times to successfully reach TD. After reaching TD of 14,000 feet, a fishing job was encountered.

4. We plugged back to 10,500 feet and, using a Homco Mechanical Orienting Tool and a Homco Deflecting Tool, sidetracked the hole.

5. We used the Homco Slim Hole Survey Instrument successfully another 30 times to TD.

HOMCO "HK" SUBSURFACE DIRECTIONAL SURVEY INSTRUMENTS

The HOMCO "HK" Angle Compass Units are the only non-friction apparatus available to obtain course deviations from the vertical and the direction in which this deviation was made. This non-friction property of the "HK" units permits greater accuracy than is possible with any other instruments used in the survey of bore holes today.

The Homco "HK" Singleshot

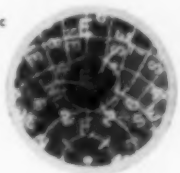
This instrument obtains photographically the information necessary to directionally drill bore holes or to locate bottom, or any part of the bore hole, in relation to the surface. This instrument is applicable to any uncased bore hole over 2¼" in diameter. An inclinometer (only) unit is available for inclination surveys in cased holes.

The HOMCO "HK" instrument may be go-deviled to land in a non-magnetic collar, or to protrude through certain core bits into the open hole. It may also be used on a wire line in the open hole, or to land in a non-magnetic drill collar. It is also frequently used with other tools.

The Homco "HK"-HKS, (slim hole survey instrument)

This instrument is an adaptation of the "HK" SINGLESHOT. The HKS instrument has a protective case that is only 1¼" in diameter and thus can be run in much smaller pipe.

"HKS" Single Shot Disc
(2 times actual size)



The Homco "HK" Go-Devil Multishot

This instrument makes multiple recordings photographically of the information necessary to calculate the deviation of the entire depth of a bore hole. Designed primarily for go-devil operation it may also be lowered on the end of a string of pipe, or lowered into an uncased hole on a wire line.

This instrument uses the same basic principle as the "HK" singleshot. The difference being that the "HK" Multishot makes multiple recordings rather than a single recording on each trip in the hole. A directional survey of the bore hole can be conducted any time it is necessary to remove the drill string from the hole.

HOMCO

HOUSTON, TEXAS (HEADQUARTERS)

ASSOCIATED A OIL FIELD RENTALS

EXPORT OFFICES
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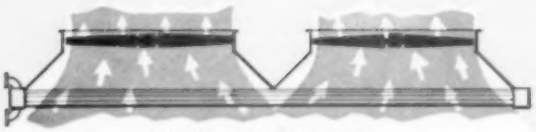
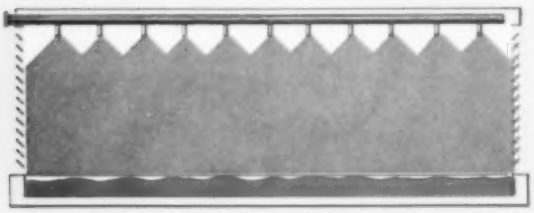
Should Process Plant Cooling Systems Use..

AIR ——



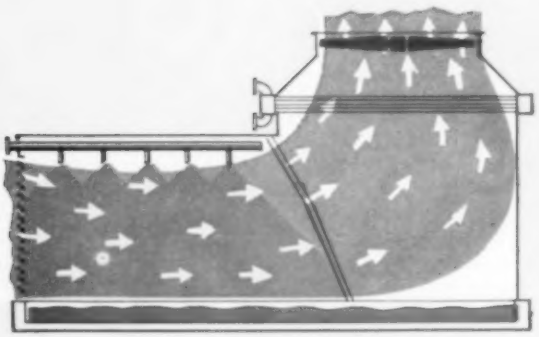
HUDSON SOLO-AIRE UNITS

WATER ——



HUDSON COOLING TOWERS

or a combination of AIR AND WATER ——



HUDSON COMBIN-AIRE UNITS

The answer is found only through comparisons of economics of air, water or a combination of the two for cooling each process stream, and incorporating the results in one integrated cooling system. Factors to be considered include desired effluent temperature of each process stream; summer and winter ambient dry and wet bulb temperatures; availability and quality of water; possibility of public water pollution; space available; and first cost, maintenance cost, and operating cost of equipment.

HUDSON is unique in supplying water cooling towers, Solo-aire units, and Combin-aire units to comprise integrated cooling systems utilizing air and water in economic ratios. With the collaboration of owners' engineers, HUDSON has designed integrated cooling systems for a wide range of process and climatic conditions. Hundreds of HUDSON installations are operating in the United States, Ireland, England, France, Spain, Norway, Saudi Arabia, Pakistan, the Philippines, Mexico, Chile, Peru, Venezuela, and Canada. HUDSON experience, available without obligation in integrating the cooling system with process design, will be most valuable to plant owners if utilized during planning stages.

In early design stages of future projects let HUDSON collaborate with your engineers in selecting the integrated cooling system which best balances capital investment and operating cost for the specific process, climatic and water conditions.

HUDSON

ENGINEERING CORPORATION

FAIRVIEW STATION • HOUSTON, TEXAS

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Canadian Gas Set to Invade U.S.

- **National Energy Board's approval to four companies permits exports totaling 1-billion cf/d.**
- **'Border' prices will be higher than prices paid in Canada and above comparable U.S. delivery contracts.**

The new Canadian policy on natural gas exports appears to be to invade the U.S. market wherever possible.

That became clear this week after the National Energy Board issued its first recommendations, approving five of six applications to export gas. The Canadian Cabinet quickly accepted the recommendations, granting five permits to four major transmission companies.

The initial invasion would add up to 1-billion cf/d to upstate New York, the Upper Midwest, and the West Coast.

The permits granted:

- Trans-Canada Pipe Lines, Ltd., was given permission to move 204-million cf/d from its line at Emerson, Manitoba, to Midwest Gas Transmission Co., subsidiary of Tennessee Gas Transmission Co., for shipment to Marshfield, Wis. Maximum exports may total 1.4-trillion cu. ft. under a 20-year contract.
- Trans-Canada also got permission to export a maximum of 204-million cf/d to Tennessee Gas at Niagara Falls, N.Y., after supplying the needs of Canadian customers served by the line. The companies have agreed to have gas flow northward, from the U.S., if needed, to meet Trans-Canada's needs in the Toronto market.

The permit for export at Niagara Falls is limited to five years.

- Alberta & Southern Gas Co. wholly owned subsidiary of Pacific Gas & Electric Co., was awarded a 25-year permit for export of 458,750,000 cf/d at Kingsgate British Columbia, for transmission to the San Francisco area.
- Westcoast Transmission Co. got permission to ship an additional 152-million cf/d for 20 years into the Pacific Northwest to El Paso Natural Gas Co. Westcoast, which already ships gas to the region, asked for 165-million cf/d.
- Canadian-Montana Pipe Line Co., wholly owned subsidiary of Montana Power Co., received a license to export 36-million cf/d at Cardston, Alberta, for 25 years. It will buy gas from Alberta & Southern, and sell it to its parent company.

It's up to the U.S. Federal Power Commission to flash the final green light to start the flood of gas from Canada.

So far, FPC has only approved one —Midwestern Gas Transmission's $52-million project. Conditions of FPC's approval last October were that Canadian permits be obtained. Now both the Dominion and Alberta governments have approved the export permits.

In a related application, Tennessee Gas wants to take, on an interruptible basis, anything Trans-Canada has left over at Niagara Falls. This doesn't require any new facilities because Tennessee would use facilities through which it has sold gas to Trans-Canada in the past. The outlook, according to Washington observers, is for a quick, non-contest hearing.

Canada's approval of exports for Pacific Gas & Electric's big project (Alberta & Southern and Westcoast Transmission) is expected to speed up an FPC decision in that case. No opposition to the project has been filed, and the briefs are all in. The FPC staff supports the project, and the matter is now before Examiner Robert M. Western for a decision, which should be coming soon.

A spokesman for PG&E was hopeful this week that FPC approval might be coming in May or June, so that the pipeline could get some work in during the current construction season. "It's about a two-year job to run lines down to San Francisco," he said. "FPC will take official notice of Canada's action, I'm sure."

Canada's rejection of one applicant—Niagara Gas Transmission, Ltd., may settle a fight before FPC between St. Lawrence Gas Co. and New York State Natural Gas Corp.

Both U.S. companies want to serve the Massena-Ogdensburg area in New York.

Hearings are over, and the case is before the examiner. The FPC staff has recommended giving the project to New York State Natural Gas and Niagara Mohawk Power Corp. New York State Natural wouldn't need new facilities, and Niagara Mohawk would spend $13-million, for which it doesn't require FPC authorization, since it operates intrastate.

St. Lawrence Gas Co.—the other applicant before FPC—would spend $6.7-million by the end of the sixth year of operation, and import 8,240,000 cf/d from Niagara Gas Transmission. Rundown of the Niagara Gas project by Canada may settle the FPC problem in favor of New York State Natural and Niagara Mohawk.

The "border" prices for Canadian gas are higher than existing contracts in Canada, and in some cases well above prices being paid for U.S. gas by the same purchasers.

The National Energy Board reported that while Trans-Canada's customers in the Manitoba rate zone—primarily Winnipeg—pay 24.94¢ per Mcf. at a 90% load factor without escalation, the average export price over 20 years at Emerson would be 30¢ per Mcf. at a 95% load factor after the third year. Even if Trans-Canada's estimated transportation cost of 0.9¢ per Mcf. between Winnipeg and Emerson is deducted from the export price, the comparison "remains favorable," the board said.

The board added that, while it is not possible to compare the border price directly with prices charged for U.S. gas "evidence before the board indicated that in the general area in which gas exported at Emerson would be sold, the delivered cost of the Canadian gas is greater than that of gas now being received from other sources."

Cost-of-service was used for determining the Alberta & Southern, Westcoast, and Canadian-Montana "border" prices, with rates calculated at a 7½% return on investment.

Westcoast will pay 12¢ per Mcf. (at 15,025 psi.) for gas delivered prior

to January, 1963, from the Savanna Creek field. Thereafter the price goes up ⅓¢ per year for the term of the contract, with certain escalation clauses based on volume. There is also a favored-nation clause.

Westcoast will pay 14¢ per Mcf. initially in the Calgary field. The price then increases to 14.5¢ for 1962, 15¢ for 1963, and thereafter escalates ¼¢ each year.

Again, the board says it is difficult if not impossible to compare the price of Canadian gas in the U.S. markets to be served with prices of gas coming into the same markets from U.S. sources.

It cited Westcoast's estimates of cost of gas at the border to El Paso: first year, 25.66¢ per Mcf.; second year, 25.86¢; third year, 26.15¢; fourth year, 26.51¢; fifth year, 26.63¢.

For Alberta & Southern gas exports to Pacific Gas Transmission (Pacific Gas & Electric), the border price starts at 25.11¢ per Mcf. and escalates to 27.38¢ in the fifth year.

Montana Power says the Canadian gas to be taken under the contract with Canadian-Montana would be "the most expensive" gas ever purchased by the company.

Canadian-Montana will sell its gas to its parent company at the border at an average price of 22.63¢ per Mcf. the first year, 24.16¢ the third, and 24.96¢ the fifth.

Canadian-Montana says this could be properly compared with the cost of gas it now purchases from Montana-Dakota Utilities Co., which is 15.69¢ per Mcf. at the Wyoming-Montana boundary.

Canada also gave permission to start building some new pipelines to enable the exporter to fulfill their contracts. They include:

(1) A 51-mi., 30-in. line from Iles des Chenes, Manitoba, to the International boundary near Emerson, by Trans-Canada;

(2) A 108-mi., 36-in. line from southwestern Alberta through Crow's Nest Pass to Kingsgate by Alberta Natural Gas; and

(3) A 3-mi., 16-in. line from Cardston, Alberta, to the U.S. border, by Canadian-Montana.

It's going to take a lot of money to start the gas moving—including an estimated $200-million for transmission facilities in Canada alone.

This National Energy Board estimate doesn't include spending for gathering facilities and processing plants. Alberta & Southern, for example, estimates its additional investment for such facilities would amount to $140-million.

The Canadian Petroleum Assn. has estimated that investment in the oil and gas industry, after excluding direct investment in pipelines and licenses, would increase by some $300-million, in the period to January, 1969.

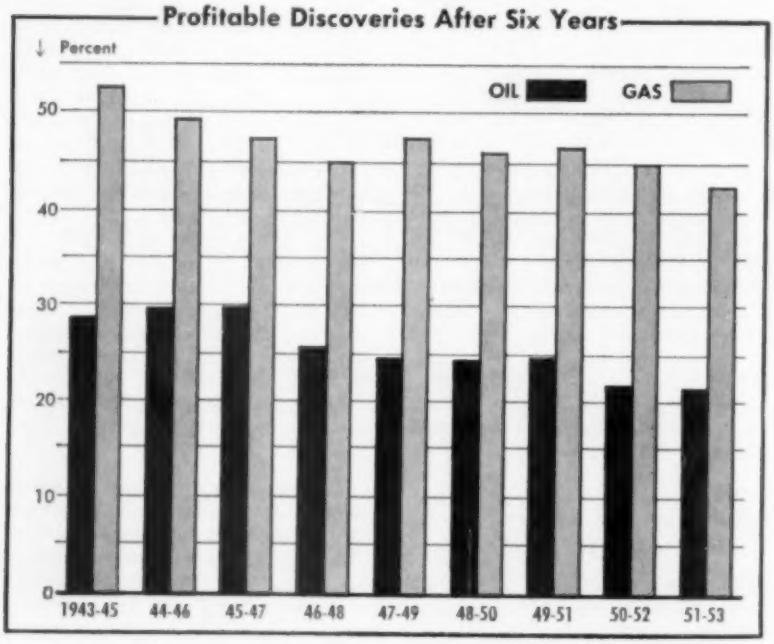
Gas sales to the U.S. are slated to cut Canada's trade deficit. By 1965, the Energy Board estimates, they'll reach $75-million.

The Canadian Petroleum Assn. estimates that cumulative increases in gas revenues to the producers from such exports would amount to nearly $500-million for the 1961-68 period, and that total revenues to the industry over a 25-year period would be increased by some $1,850,000,000.

Exploratory Success Ratio Is 1 in 43

The oil industry maxim that only one test out of nine drilled finds some oil or gas is deceptive. In terms of profitable oil or gas, the ratio is one out of 43 drilled.

That's the finding of the Committee on Statistics of Exploratory Drilling of the American Assn. of Petroleum Geologists, based on a continuing study of oil and gas fields having a minimum of six years of development history.



The chart (below) shows the percentage of discoveries, on a three-year moving average, that were profitable after six years of productive history.

The definition of a "profitable" field, used by the AAPG committee, is an oil field that after six years of history has ultimate total recoverable reserves of more than 1-million bbl. and a gas field with ultimate recoverable reserves of more than 6-billion cu. ft.

"Unprofitable fields" are those with less than these minimum reserves, or fields that were abandoned within the first six years.

The ratio of ultimate successes of oil fields has declined steadily since 1945-47 to the present average of 21.55% for fields discovered six years ago.

For the decade ended with 1953, the ratio of fields having more than 1-million bbl. of reserves to total new-field wildcats shows a steady increase of unsuccessful wells. The number of unprofitable holes drilled for each profitable discovery increased from 35 in 1944 to 42 in 1953.

Thus, approximately 98% of all new-field wildcats drilled are failures, in that they are abandoned as dry or they discover reserves too small, on the average, to be profitable.

Oklahoma producer says:

'Minimum' Allowable Spells Chaos

The proposed minimum allowable of 50 b/d per well in Oklahoma would result in an additional 130,000 b/d of permissible production "which the market could not absorb," according to a producer spokesman.

The spokesman, John P. Hammond, of Amerada Petroleum Corp., representing the Mid-Continent Oil & Gas Assn., told the Oklahoma Education Assn. last week that such a proposed minimum allowable in the state would mean "maximum chaos."

"We cannot legislate a market for our crude," he said. "We cannot force our crude purchasers to buy more than their needs, and we cannot by legislation carve out of the total domestic demand for crude a particular slice or portion and dedicate it to the sole use and benefit of Oklahoma."

The proposed minimum allowable sought by the Independent Producers & Royalty Owners Assn. of Oklahoma, which was formed last year for that purpose, would make it impossible for the Corporation Commission to "efficiently handle their job of preventing waste and protecting correlative rights," Hammond declared.

It would "discourage rather than encourage oil development, reduce not increase tax income," he asserted.

The producer spokesman contended that the basic principle of the statutory minimum well allowable is "as wrong as a $3 bill."

Hammond declared that the inflexibility of the proposed constitutional amendment would defeat sound conservation practices, and would negate the ability of the Corporation Commission to make necessary monthly adjustments.

Each pool is a problem to itself, not sensitive to laws or arbitrarily fixed minimum production rates.

Thus, Hammond said, the optimum rate per well could be under the legal minimum, yet the Corporation Commission would be helpless to regulate it.

He defended market demand proration, and contended that proponents of the minimum-allowable measure had not presented the whole picture.

Hammond told the educators that proponents had made a point of the fact that six states have marketed demand proration, but that 26 did not.

What they didn't say, he went on, is that the major part of the oil production in the country—over 68%—comes from the six prorated states.

Hammond said proration is particularly important to small independents, since it prevents pipeline owners from giving preferential treatment to their own production.

It is clear, he continued, that the "problem with which we are struggling springs from lack of market, not lack of oil."

In an ironical vein, he expressed surprise that the "proponents of this amendment do not propose legislation to [get to] the root of the problem, and advocate laws requiring every man, woman, and child in the state of Oklahoma to buy 25% to 50% more gasoline, fuel oil, and the multitude of other petroleum products."

He made a special plea to Oklahoma educators to work vigorously against the proposal. He urged the Oklahoma Educational Assn. particularly to rescind a previous endorsement and fight the measure, either as a group or as individuals.

New Fracturing Depth Record?

New depth records were believed set last week for hydraulic formation fracturing in two Oklahoma wells.

British-American Oil Producing Co.'s No. 1 Brickel, in the Stephens County sector of the Knox Bromide field, was treated in the second and third Bromide sands at a maximum depth of 15,824 ft.

A few days later, British-American's No. 1 Baker, in the Grady County part of the Knox field, was treated in the same formations at a maximum depth of 15,758 ft.

Halliburton Oil Well Cementing Co. performed both fracturing operations. The Brickel well was treated with 75,000 gal. of 'Chemfrac' with 1 lb. of sand per gal.

In the Baker well, 44,000 gal. were used in the same ratio, 1 lb. of sand to 1 gal. Injection rate was from 20 bbl. to 29 bbl. per minute.

A fracture was attempted on a deeper hole—Richardson & Bass' 1956 test below 20,000 ft. in Louisiana—but it encountered a mechanical failure.

Engineer Dispels Small-Car Blues

Compact cars will engender many changes in the automotive transportation picture over the next decade, but gasoline demand will not be hit as hard as had been expected.

To the contrary, says Max M. Roensch, of General Motors Corp., current trends indicate any reduction in total fuel consumption caused by the better economy of the compacts will be counterbalanced by greater use of automobiles.

Thus, the outlook for continued growth in gasoline demand is good, according to the assistant chief engineer of GM's Chevrolet division. He spoke at last week's meeting of the Western Petroleum Refiners Assn.

Supporting the optimistic side of the picture are the combined effects of more expressways, more cars, and more long-distance driving, all of which could compensate for the fuel economy of compact cars.

Roensch brought up a surprising point about expressways in mentioning a recent study in the Detroit area.

Test cars using expressways made 15% to 30% better time, he said, but they also used 15% to 20% more gas than test cars traveling alternate city streets to the same destinations.

The anticipated addition of 30-million cars on the highways is going to compound traffic congestion, the engineer went on.

This, he explained, will mean an increase in fuel consumption because of the poor economy of stop-and-go driving.

Fuel demand also will be boosted by more long-distance traveling, which will be encouraged by the multibillion-dollar highway construction program, and more leisure time for families with higher incomes.

Another factor that will offset some of the impact of compact cars on total gasoline demand is the expected 50% increase in the car population in the '60s.

Roensch said that by 1970, 90-mil-

lion to 100-million cars will be on the road.

Economy cars, which consume about one-third less gasoline than the standard-size models, are expected to account for about 25% of the car sales in 1960, and such a pace probably will continue through the next decade.

Thus, he says, total gasoline demand in 1970 should be around 76-billion gal., instead of the 83-billion gal. that would have been burned, if all cars had been full size.

He went on from there, however, to raise and discuss the factors which could counterbalance and compensate for the projected decrease.

Although octane ratings and fuel volatility will not change much, compact cars may run into trouble with regular gas in some areas.

Roensch said 75% of all 1960 cars will be designed to use regular grade gasoline.

But compact cars may have problems here and there because of the range of octane numbers.

The spread, in all but the Rocky Mountain region, is four octane numbers, according to Roensch.

Thus, he said, "it is inevitable that the engines in the low octane regions are going to experience at least some knocking."

Vapor lock is another matter. It is felt, the engineer said, that compact cars will be less sensitive to it because of lower fuel consumption on rapid acceleration.

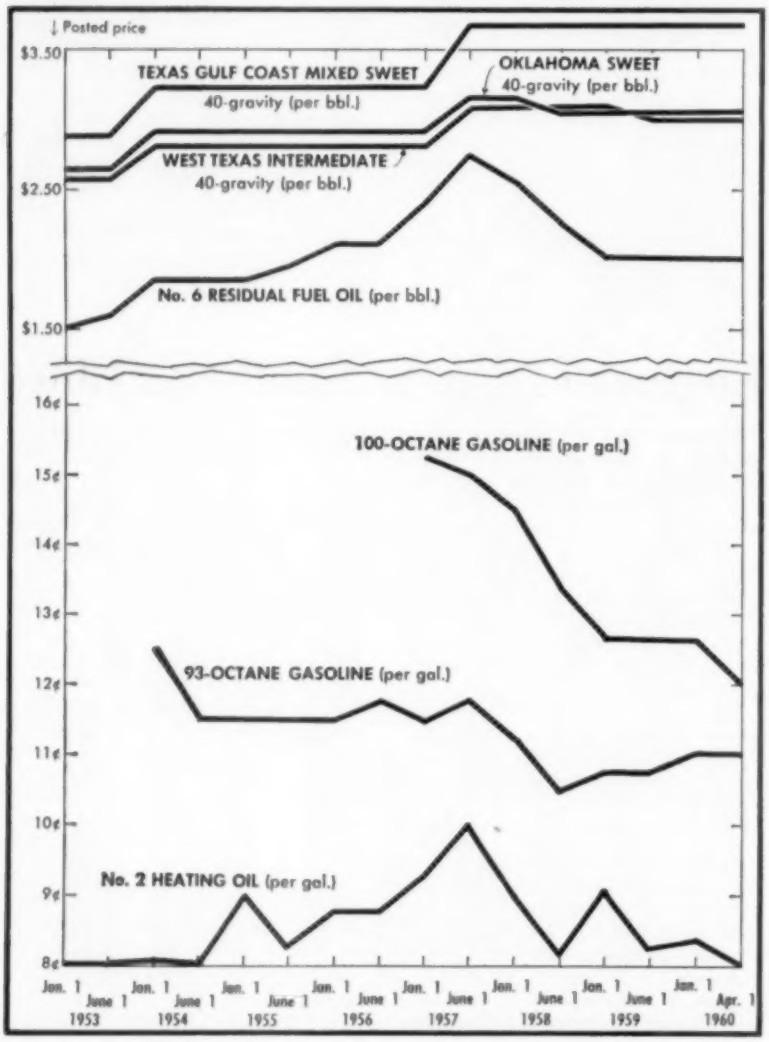
Among other things, compact cars are influencing the trend to six-cylinder cars in preference to the more powerful eight-cylinder engines.

Eight-cylinder cars started a downward trend in 1958, after outrunning six-cylinder cars for the four preceding years.

The trend slowed up somewhat in 1959 but, Roensch said, it must be presumed that the declining ratio between the eights and the sixes will continue through this year.

Extra-cost options, including automatic transmissions, are on the decline too, he noted, indicating a change in public interest from power and performance to lower-cost engines that are more economical to operate.

Product Price Drop Squeezes Margins



A look at product prices since the last two general price boosts for crude in 1953 and 1957 shows how tightly refiners' profit margins are being squeezed.

Crude prices were hiked 25¢ a bbl. in June, 1953, and 25¢ to 35¢ a bbl. in January, 1957.

Although many crudes have been subject to selective downward adjustments since 1957, prices of crudes in greatest demand still are as much as 80¢ a bbl. higher.

While the general level of crude prices is above mid-1953, product prices for the most part are no higher, and in some cases are considerably below that level.

Almost all product prices started a sharp downturn at the time of the mid-1957 crude price hike.

The low price of No. 2 heating oil in the Gulf Coast wholesale market, for example, stood at 8¢ a gal. in 1953. It rose to a high of 10¢ a gal. by June, 1957. But then it tumbled to 8¢.

The price of 93-octane gasoline at the Gulf was 12½¢ at the start of 1954. By June, it had slumped to 11½¢, and continued around that level until June, 1957. Then it dropped to 10½¢ a year later, rallied somewhat, and now stands at 11¢.

The price of 100-octane gasoline has shown the greatest drop. It opened in January, 1957, at 15¼¢ a gal., and steadily declined to the current 12¢ a gal.

No. 6 fuel oil climbed from $1.50 a bbl. in 1953 to a high of $2.75 in mid-1957. Then it, too, started a downspin, to $2 a bbl. Late last week, though, the tightening supply resulted in a 10¢ a bbl. hike.

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Oil Puts Emphasis on Foreign Sales

The scramble for overseas markets is bringing some new concepts and changes to the foreign sales departments of many U.S. companies.

The need to find outlets is strong for companies with growing foreign production. Not only does a worldwide surplus productive capacity exist, but import controls limit the volume that can be shipped to the U.S.—the only market now available to many of these companies.

World oil overcapacity to produce "will only worsen" in 1960, and will be with us "for many years to come," says a vice-president of Standard-Vacuum Oil Co. And, he predicts, North Africa will be the chief cause of a "severe dislocation" in crude supplies.

A spokesman for another U.S. firm says, "I've been overseas trying to peddle Venezuelan oil and couldn't unload a barrel of it."

Many domestic companies are upgrading their international sales staffs, and setting up new overseas departments.

Last year, many of these companies set up such offices in New York—the big marketplace for buying and selling international oil.

Involved in the move were companies such as Standard Oil Co. (Ind.), Continental Oil Co., Gulf Oil Corp., and Phillips Petroleum Co. (PW—Feb.20'59,p21). This year, new offices are being opened in London, and many of the foreign sales departments are now being headed by vice-presidents.

Continental Oil Co., which moved its foreign department to New York last year, has now created a foreign sales department, with a new vice-president to head it up.

While plans are still in the initial stage, the new foreign crude and products distribution department already has a staff at work. Its chief is A. E. Ernst, a former vice-president for the Caltex group.

Continental has an office in Hamburg, and is expected to set up a London office soon. The company has had an office in Rotterdam for some years, mainly for petrochemical sales.

Continental is interested in possible investments in refineries and chemical plants overseas, and has joined Phillips Petroleum in building a carbon black plant in France.

Tidewater Oil Co. and Standard Oil Co. (Ind.) are also actively pushing sales efforts abroad.

Tidewater has long had offices in Hamburg and London, and its top man, J. Paul Getty, has permanent headquarters in Paris. It recently set up a subsidiary to build a refinery in Denmark and market the output throughout Scandinavia.

Indiana Standard set up Pan American International Oil Co. two years ago, and Amoco Trading Corp. later the same year, both with offices in New York. Since then it has set up offices in London and Paris, and has representatives scouting throughout the Eastern Hemisphere.

With a big push from its Libyan oil finds, Ohio Oil Co. is setting up an international oil sales department, to be headquartered in London.

The new department will be managed by F. C. Aldrich, manager of the company's Sidney (Neb.) production district. He will direct Ohio's crude sales outside the U.S. and Canada, and will report to Ohio's supply and transportation organization, headed by J. R. Donnell, vice-president.

At the same time, the company named its vice-president of production, Paul L. Henderson, to concentrate on foreign production activities.

A company spokesman says Ohio feels it's going to have commercial production in Libya, and that the oil will "have to be sold somewhere." Ohio never had a foreign sales department as such, he adds, and decided the time was ripe now.

Phillips Petroleum Co. late last year reorganized its International Department to facilitate expansion of its foreign operations.

The new department—headed by vice-president Paul Parker—is broken into three divisions: (1) exploration, managed by H. L. Brookby; (2) operations, managed by W. L. Phillips; and (3) sales and development, managed by John Getgood.

Earlier in the year, Phillips had set up a foreign sales and development department in New York, which has now become the sales and development division of the new international department. Its aim was to engage in worldwide sale of crude at first, but ultimately to be responsible outside of the U.S. and Canada for the sale of all Phillips products, for patent licenses and technical services, for purchase and resale of petroleum products, and for development of manufacturing, distribution, and sales projects.

A company spokesman describes the new department as "just a nucleus that is certain to grow and expand rapidly."

The company has already set up offices in Tokyo, New Delhi, Paris, Panama City, Sao Paulo, Buenos Aires, Madrid, and Tripoli—in addition to those already in operation in Mexico City, Zurich, and Caracas. Most of the new ones are, however, in the "listening post" category.

Phillips expects it will have to create its own market for some things.

The company, which counts heavily on its petrochemical position, is out to promote cooperative manufacturing facilities in foreign countries. John Getgood, head of the sales division in New York, says the company wants to work hand in hand with nationals of other countries to set up desired and economically feasible facilities.

"By engaging these plant situations," Getgood says, "we'll not only have a market for raw materials, but also for licenses.

"Right now, our problem is keeping up with inquiries in the petrochemical field."

Sun Oil Co. has also established a new crude purchases and sales division. This one will handle Sun's "expanded buying and selling activities of both domestic and foreign crude."

The new department, which will be managed by Charles B. Duke, is part of Sun's production department, under the direction of John G. Pew, production vice-president. A former crude salesman, D. E. Norris, is responsible for sales and purchases of foreign crude.

Some companies are getting ready for possible entry into world market competition by setting up "listening posts" in New York. Ashland Oil & Refining is an example.

At present, Ashland has no foreign crude to worry about. Its imports quota of about 13,000 b/d is greater than its foreign production (about 5,000 b/d from Venezuela). But the company anticipates that other arrangements may some day have to be made. And, in the meantime, it intends to become knowledgeable in world market affairs.

Other firms—such as Murphy Corp.—are sending representatives abroad in search of information on foreign markets.

Murphy now has a full-time man in Europe, C. Stribling Snodgrass, to assist the company in familiarizing itself with marketing conditions in the countries of Western Europe. This way, the company feels, it will be prepared in the event "attractive opportunities" develop.

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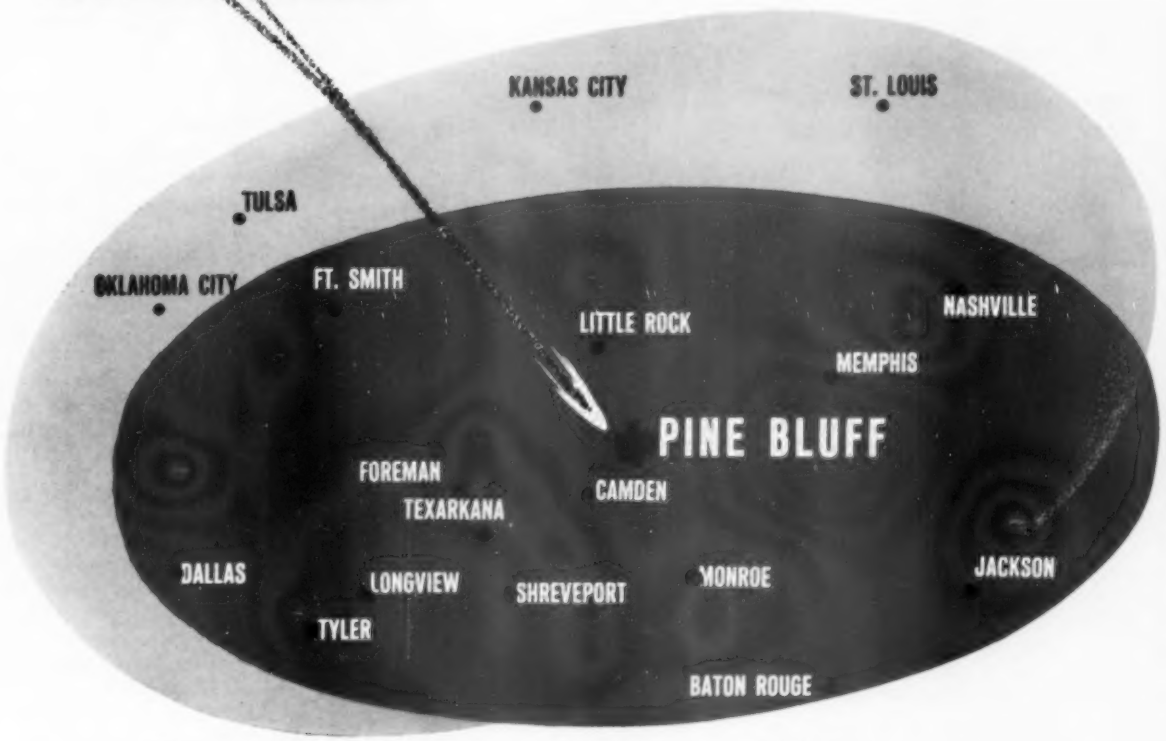

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When the Goose Gets Squeezed Too Tight

Venezuela's oil ministry has repeatedly emphasized during the past year its goal of conserving oil and "stabilizing" Venezuelan production at a growth rate of no more than 4% to 6% per year.

It is now becoming increasingly evident, however, that the real problem confronting Venezuela is not how to slow down its production—but how to prop it up.

A year ago, after Venezuela's higher tax decree cut oil industry profits sharply, such a prediction might have been dismissed as merely "propaganda" by an angered industry.

But by now, enough concrete trends have emerged to warrant a good deal of alarm—not only for oil companies with substantial investments there, but also for Venezuela itself, whose very economic life is dependent on profitable oil operations.

There can be little doubt left on this point after perusal of the special 34-page analysis of the Venezuelan oil situation recently prepared for a special commission of the Venezuelan Congress studying the country's economic situation. (For highlights of the report see last week's issue of PETROLEUM WEEK.)

The study was prepared by the Venezuelan oil industry Chamber (composed of Venezuela's 15 main operating companies). On the whole, it leans over so far backward to avoid any possible accusation of exaggerating or special pleading that it tends to understate the seriousness of the outlook.

* * * *

But if one reads between the lines, there is much food for thought.

For instance, the report concludes that production this year is not likely to rise above the 1959 level (even though some 1,000,000 b/d of excess productive capacity is shut in).

If this forecast proves correct—and it's the most authoritative one made to date—then look at what this implies:

• Venezuela's oil production will have, in fact, shown no growth whatever over a three-year period—in contrast to substantial gains in most other oil export nations. True, Venezuela's oil output rose 6.3% during 1959. But the 1959 increase was merely a partial recovery from the sharp slump in 1958—and, furthermore, the main bulge in production in early 1959 was at least partly "artificial," reflecting an abnormal spurt in shipments to the U.S. to beat the deadline for imposition of mandatory import restrictions.

At any rate, Venezuela's 1959 production still failed to quite match its 1957 total. Thus, the predicted 1960 production will be roughly at the 1957 level.

• Nor is Venezuelan production likely to show much growth in the next several years (barring, of course, another unexpected world oil crisis like Suez). While the report makes no specific forecast on production beyond 1960, its analysis of the many adverse factors weighing down the Venezuelan outlook suggests no other conclusion. Private studies by several leading Venezuelan producing companies actually predict a reduction in 1960 production, and foresee little, if any, over-all spurt in Venezuelan production for the next five years.

• This raises a serious question-mark over the country's entire fiscal program. The government, which has already had to resort to an advance against oil taxes, is now also seeking a $200-million loan from U.S. banks.

Moreover, the government has based its new four-year economic development program on the oil ministry's forecast of a 4% annual increase in oil production during this period.

It should be noted, too, that at least some increases in the volume of production are needed merely to keep the government's (and the industry's) oil income from falling. This is because further declines in per-barrel oil realizations are inevitable—partly as a result of the new hike in Venezuelan oil labor costs, and partly because of the continuing steady erosion of oil sales prices.

Last year's decline in world prices, for instance, was responsible for a drop of nearly $140-million in Venezuela's estimated government oil revenues for 1959 compared to 1958, even though the volume of production was 6.3% higher.

Even if there should be no further declines in posted prices—an uneasy assumption at best—some further declines in actual price realizations are almost certain under current cut-throat market conditions. The volume of Venezuelan crude that cannot find a purchaser except at heavily discounted prices is growing.

To make things worse:

A further cut in oil exploratory activity and development drilling is under way. Oil capital spending, already off substantially, is slated to be slashed sharply later this year when certain major construction projects initiated several years ago are completed.

And this general retrenchment is already resulting in substantial layoffs of workers (as well as complete shutdown of some of the higher-cost oil operations)—all at a time when the government is grappling with an acute unemployment problem. (For more details on the layoffs and cuts in drilling and capital spending programs, see pages 74 and 78.)

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Like the widening ripples caused by a stone thrown into water, the repercussions of these retrenchments cannot help but spread, directly and indirectly, throughout the entire Venezuelan economy.

In fact, Venezuela is close to becoming a classic example of how easy it is for an oil exporting nation to reach the point of diminishing returns.

It is simply a case of too many extra burdens being piled on an industry until the sum total becomes back-breaking.

* * * *

Even so, the industry might have continued to flourish if it were domestically oriented—i.e., if it served domestic markets which the government could take steps to protect (as the U.S. is doing).

But Venezuela's oil industry is an export one (94% is shipped abroad). Thus, the conditions under which Venezuelan oil can be sold are determined at its final destination—not in Venezuela.

And it is here that Venezuela chose a particularly unfortunate time to pile extra tax and other burdens on its oil exporters. (Total payments to the Venezuelan government last year came to 66% of industry profits, compared to 50% in the Middle East. Comparable tax and royalty payments came to only about 42% in the U.S. and 45% in Canada.) It's like putting your horse into a race dragging an extra 1,000-pound load.

For the oil surplus, already burdensome two years ago, has continued to multiply at an unprecedented rate on a worldwide basis never witnessed before in the lifetime of the present oil generation. Excess producing capacity pressing for market outlets is already some 35% of free-world production, not counting the big new producing areas (e.g., the French Sahara and Libya), which will also be vying for markets shortly.

And all this is compounded by a brand new economic factor on the international oil trade scene: the development of large new overseas oil reserves by newcomers with no established world markets of their own (such as the Japanese in the Persian Gulf, the French units in the Sahara, and the score of American newcomers in the Middle East, North Africa, Venezuela, and elsewhere).

All these are under far greater financial pressure than the older, established international major companies to crash into markets somehow—anyhow—in order to realize some immediate return on their capital investments.

* * * *

This is an entirely different set of conditions than prevailed after World War II, when the Venezuelan Administration—the same one in power today—similarly pioneered a new oil tax decree (50-50) and piled other new burdens on oil. There was a world-wide oil shortage then, which became so acute by 1946-1948 that crude oil prices more than doubled. Then producers sat in the driver's seat—producing governments as well as producing companies. It was they who named the terms.

But now it is the purchasers who are being wined and dined, and swamped with offers from all over the world. And it is they who name the terms.

And the purchasers are going to remain in the driver's seat for a long, long time—regardless of the wishful thinking of many a producer. Even if world demand continues to rise steadily, it will be a long time before present excess capacity can be mopped up—a longer time than present figures indicate, because many large new producing facilities are steadily being added.

* * * *

The Venezuelan oil ministry has said it doesn't want to compete for new markets; it is content just to continue sharing in the growth of its existing markets.

But it is no longer a question of new markets. The costs of Venezuelan oil have already risen so much higher than those of any other exporting area that the real question now is whether Venezuelan oil can even hold its old customers—much less share in their growth.

Venezuela's main shipments, according to the Chamber's report, go to these areas: 43.3% to the U.S.; 9.9% to Canada; 7% to Great Britain; 6% to Brazil; 5% to Argentina; and the remainder mostly to British West Indies, Puerto Rico, Cuba, Netherlands, and West Germany.

The U.S., which is by far Venezuela's biggest oil customer, itself has current surplus capacity of 3-million b/d, the Chamber's report points out. Venezuela's total oil exports to the U.S. have remained virtually constant in the 1957-59 period, compared to rapid increases prior to that. The long-term growth of the U.S. market will offer more opportunities despite import controls, the Chamber notes, but only to areas "whose cost levels allow them to compete."

Canada is also faced with a large local surplus producing capacity, while its import markets on its Eastern Seaboard are steadily shifting to Middle East crude.

In South America, Venezuela is about to lose its key market in Argentina as a result of that country's successful local oil development program. Brazil and Chile, Venezuela's other prime markets, are both pushing active exploration and oil development programs. And, meanwhile, Middle East oil is making marked inroads into all these areas.

As the report put it so well: "A high tax rate by itself does not compensate the nation for the loss of export markets, because it is not possible to count on a smaller production being sold at higher prices, and thus avoid a reduction in total fiscal revenues.

"The loss of markets is a dangerous downward path, since it is not possible to foresee how far its effects will reach, particularly at a time when markets . . . may be captured, perhaps permanently, by competitors anxious to find outlets for their own enormous surplus capacity."

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What's New / IN THE INDUSTRY

College engineering enrollments are down again, for the second consecutive year, according to the American Society for Engineering Education.

Figures compiled by the Society and the federal government's Office of Education show 1959 degree enrollments at 240,063, compared with 249,950 in 1958, and 257,777 in 1957. Because of the high enrollments of the mid-50s, the number of degrees awarded is still on the upswing. That, however, will decline when the smaller freshman classes of 1958 and 1959 reach their senior years in 1962 and 1963.

Engineering degrees awarded in 1959 totaled 38,124, of which 683 were petroleum.

•

The Western Petroleum Refiners Assn. of the National Petroleum Assn. are studying the possibilities of a merger.

William J. Carthaus, president of WPRA, told members that "nothing has been decided" about the merger "except that a study should be made."

•

The Federal Power Commission has scheduled prehearing conferences on 26 increases proposed by 12 companies in a move to clean up the backlog of pending cases.

The conferences, which will be held between now and June 21, involve rate filings totaling $91.5-million annually—about 22% of the amount in all pending pipeline rate proceedings.

FPC has been under pressure from Congress because rate increases being collected subject to refund by pipelines have been piling up.

•

Iraq and the Soviet Union have signed a contract under which the Russians will do oil exploration work for Iraq near the Iranian border.

The economic and technical cooperation agreement was signed by Talaat al-Sheibani, Iraqi Minister of Planning and Acting Minister of Oil Affairs, and Technoexport, a Soviet government agency. The first seismic surveys will be conducted in a 25-sq. mi. area near Khanaquin. Technoexport will provide all the equipment and technical assistance needed under the contract.

•

OCAW is slated to meet early this summer in Denver to finalize its oil bargaining goals for this year.

The union has already set dates and places for five area meetings to be held during April. Two members will be elected at each of these meetings to go to the national meeting.

•

Independents and major-company representatives have formed a group to present their views at the Texas Railroad Commission's June 16 hearing on prorating waterfloods and pressure maintenance projects.

The Texas Conservation Committee, according to its chairman, Kenneth L. Smith, vice-president of Ambassador Oil Corp., proposes to "collect, process, and present data to insure that waste will not be caused, and each producer will be permitted to protect correlative rights."

•

Applications for July-December import allocations must be filed with the Oil Import Administration by May 2.

Although the forms are being sent by certified mail, a spokesman for OIA says the agency will not take responsibility for receipt of applications, nor will the importer be excused should he fail to meet the filing deadline.

State Motor Fuel Revenues Up 4.8%

State revenues from motor fuel taxes totaled $3,058,000,000 in fiscal 1959—up 4.8% from a year ago.

Revenue from all state taxes increased 6.2% to 15.8-billion in the fiscal year. Motor fuel taxes were the second-biggest money maker for the states, accounting for 12.5% of their general revenue, which last year amounted to $24.4-billion. General sales and gross receipts taxes accounted for 15.1%.

USI **Axelson** **PUMPING NEWS**

Multiple Completions Up 65% Axelson Expands Special Products

2-ZONE PUMPS

TWO-PACKER SINGLE STRING

Cross-Over Assembly

Least expensive for dual zone completions

SINGLE-PACKER DOUBLE-STRING

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Most widely-used Axelson Two-Zone Pump, allows treating or gas venting the upper zone

ONE-PACKER TRIPLE STRING

Clamped Tubing Cross-Over

Used where the lower zone presents gas or corrosion problems. Both zones may be vented or treated.

As early as 1953 Axelson had a well-established Two-Zone Service Department when Texas was averaging less than 300 multiple completions per year. Now, with multiple completions up 65% over 1958, and running as high as 2200 per year in Texas, Axelson continues to expand its staff of full-time field specialists and engineers to handle the upswing of this type of completion.

Much has changed. Completions that once presented problems and seemed impractical are now considered routine due to Axelson's experience and advanced engineering design. Past complexities have been simplified and Axelson's know-how, specialized equipment and experience are available to all. Axelson's Two-Zone Department, now called Special Products Department, covers every multiple zone producing field in the United States and deals with both new completions and existing installations. They are also available to make recommendations on triple completions and slim hole duals or any phase of special multiple completion engineering.

Although their primary function is designing setups for multiple zone completions to take advantage of the production economies afforded by Axelson Two-Zone Pumps, Axelson experts work out production problems and make recommendations where one zone may be producing gas and the other oil, or where one zone is flowing and the other is pumping.

Axelson Two-Zone Pumps provide a practical, economical method of producing from two zones at once without commingling the fluids. Only one surface pumping unit is required, with a single rod string. All pump parts, with the exception of the cross-over assemblies, are standard, field proved parts, and the Two-Zone Pump itself is an insert-type pump, completely retrievable. A metal-to-metal seal is used for long life and dependability.

While the pumps themselves might be termed standard units, no multiple-zone completion can be called standard. No two wells present the same conditions, so each Axelson dual zone installation is in effect custom designed.

When an Axelson two-zone specialist is called in to discuss a multiple zone installation, he takes into account: pump depth (for both zones), casing size and length, tubing, water cut, gravity of the oil, desired production and the gas/oil ratio. The surface pumping unit—peak load and torque ratings, stroke length and maximum cycle, size—also enters the calculations, as well as such special conditions as sand, viscous fluid, and corrosion. He can also recommend the best tubing string design, the prime mover, surface pumping unit, packer type and rod string.

When the installation is made, he will supervise it at no extra charge—set the pumps and packers, and be on hand for the initial pump running—to make sure you have an efficient, economical production setup.

Call in your Axelson specialist and let him work with you in engineering your multiple zone installations. If you are contemplating a multiple zone flowing well, the Axelson specialist can install the correct cross-over now—and you won't have to pull tubing when you run the two-zone pump later!

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
April 8, 1960

A new, producer-backed gas bill is expected to be introduced in Congress within the next two weeks. The Independent Petroleum Assn. of America, leading the push for gas legislation, is winding up consideration of the new bill by members of its Natural Gas and Executive Committees. Meanwhile, backing for the measure is being obtained from 21 cooperating regional and state associations. No substantial changes are expected to be made in the bill, which will contain provisions to eliminate utility-type control over producers by the Federal Power Commission, and language to establish a "reasonable market price" criterion by which FPC would decide pipeline-producer contracts (PW—Apr.1'60,p12).

Sponsors for the bill are being lined up, and efforts will be made to get specific endorsement by the Administration. Senate Majority Leader Lyndon Johnson and House Speaker Sam Rayburn both have indicated that President Eisenhower must support a specific bill before Congress will enact legislation.

•

The gas bill will have some great hurdles to overcome. First, there is some doubt that Eisenhower will want to comment on the merits of a particular gas bill before it has passed Congress and is on his desk. Second, Sen. Johnson is wary of another gas fight, fearful that his presidential ambitions will be damaged.

There is serious question about backing by pipelines, distributors, and major-company producers. In recent months, two informal meetings of these groups have taken place—one in New York, another in Washington. There was a spirit of cooperation at the time. But now that independent producers have decided to "go it alone," some doubts on complete industry support persist.

•

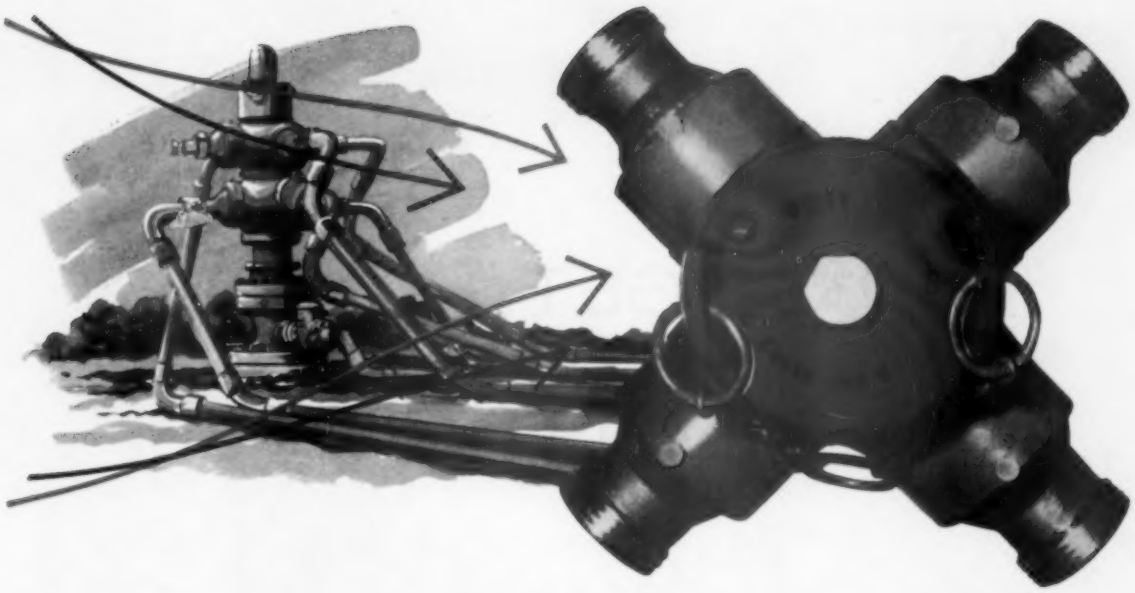
A rift exists within the Interior Dept. on the question of residual fuel oil imports. Under Secretary of the Interior Elmer Bennett recently told the National Coal Policy Conference—which was pleased—and Standard Oil Co. (N.J.)—which wasn't—that residual allocations in Districts I-IV probably won't be increased any time soon. Capt. Matthew V. Carson, Jr., oil imports administrator, reportedly differed with his superior. The split over the residual imports level traces back to last December's decision on the present January-June allocation. Carson then wanted a higher level, but was overruled by Bennett.

•

Controversy is arising in Congress over proposed oil and gas leasing changes. The House has approved an omnibus leasing bill, and a Senate subcommittee has wound up hearings. But Sen. Joseph C. O'Mahoney (D., Wyo.), subcommittee chairman, is leading a fight against higher rental fees and for court determination of fraudulent lease cases. The House bill requires higher fees and would continue Interior Dept. handling of the fraud cases. There is strong opposition to O'Mahoney within the Senate Interior Committee, however.

•

Only a few major oil companies presently plan to testify before the Roosevelt subcommittee next month. The House Small Business subcommittee headed by Rep. James Roosevelt (D., Calif.) will hold hearings Apr. 20-21 to answer dealer charges of coercion in handling of TBA.



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Huge New Gas Province Is Shaping Up

Recent drilling successes have firmed beliefs that northeastern British Columbia will develop into one of Canada's major gas provinces.

The area was propelled into prominence last winter with discoveries by Western Natural Gas Co., Inc. (formerly Gulf States Oil Co. of Canada) in the Ft. Nelson area. Western Natural is a wholly owned subsidiary of Western Natural Gas Co., Houston.

An on-the-spot survey by Petroleum Week shows that an impressive number of wildcats and extensions have been completed in the waning weeks of the winter drilling season.

Western Natural Gas, as operator, has just completed four wells:

• No. 2 Petitot River, 1¾ mi. southeast of Western's field discovery of last winter (map). No. 2 was completed for an absolute open flow of 185-million cf/d. Unlike the No. 1, it was an open hole completion, in line with the company's increasing practice of making such completions whenever possible, to reduce costs. The wells are located on Permit No. 382, comprising 101,224 acres, owned 25% each by Western Natural and El Paso Natural Gas Co., and 50% by Fargo Oils, Ltd.

• No. 3 Ft. Nelson, midway in a 9-mi. spread between the company's Clarke Lake No. 5-X to the northeast and its No. 1 Prophet River to the southeast. This well was completed for an absolute open flow of 135-million cf/d through completion string of 3½-in. drillpipe. Flow is from 364 ft. of continuous porous dolomite—the thickest producing reef section found in the area so far. The well is located on Permit 144, consisting of 231,670 acres, owned 20% each by Western Natural and El Paso, and 30% each by Hudson's Bay Oil & Gas Co., Ltd., and Union Oil Co. of California.

• No. 6 Clarke Lake, 1¾ mi. east of No. 2 Clarke Lake. This extension was completed for 8,260,000 cf/d through ½-in. choke. It's on Permit 195, comprising 252,672 acres, owned 25% each by Western and El Paso, and 50% by Imperial Oil Ltd.

• No. 4 Kotcho Lake, 4 mi. southeast of Western's No. 3 Kotcho Lake, the field discovery, which was completed in February, 1959, for a startling absolute open flow of 825-million cf/d. No. 4 was completed for 9.6-million cf/d through ½-in. choke. It is on Permit No. 239, comprising 107,129 acres, with ownership the same as that at Petitot.

It appears now that Clarke Lake field extends some 15 mi. along an east-west trend, on the theory that No. 3 Ft. Nelson has linked wells at Clarke Lake and Prophet River into one pool.

Another recent completion is Pacific Petroleums, Ltd., No. B-44-C North Kotcho Lake, 4½ mi. northeast of Western Natural's No. 3 Kotcho Lake. The well flowed at the rate of 7-million cf/d on the first drillstem test at 6,591-770 ft.; from 2.6-million to 5.2-million cf/d on the second test at 6,773-810 ft.; and at "a moderate rate" on the third test at 6,812-35 ft.

All of the successes in the Ft. Nelson area have been in the Slave Point (Middle Devonian), at about 6,500-800 ft.

The play for the Slave Point alone extends over an area some 90 mi. long and 80 mi. wide—roughly from Ft. Nelson to the Alberta border and north into the Northwest Territories.

The recent wildcat gas success at Celibeta in the Northwest Territories is sure to spur further Slave Point exploration in the area.

Home Oil Co., Ltd., Signal Oil & Gas Co., and Canada Southern Petroleum, Ltd., No. 2 Celibeta flowed gas at the rate of 8-million cf/d through ½-in. choke and perforations at 3,774-84 ft.

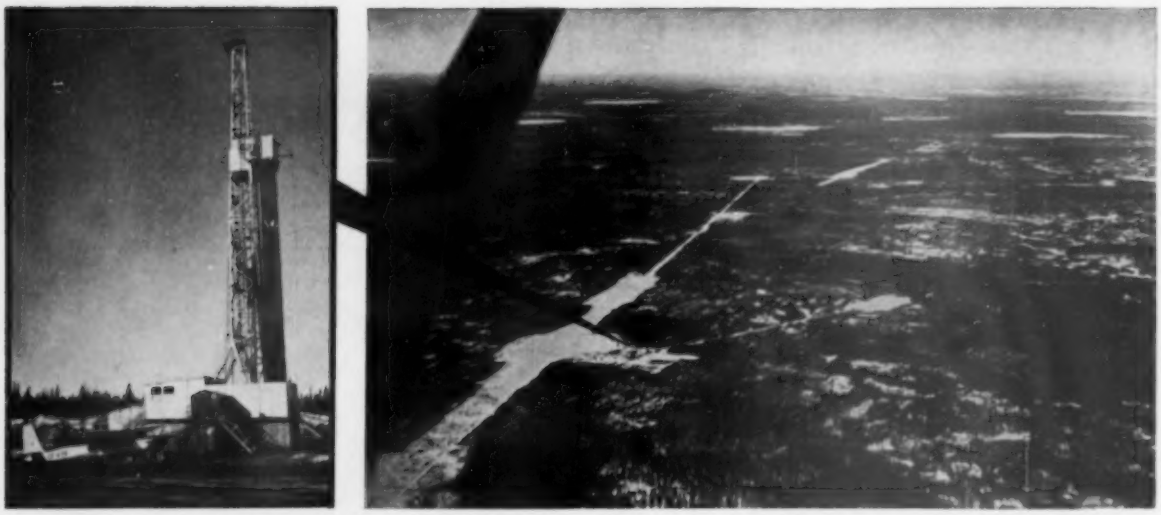
The well is located 8 mi. north of the British Columbia-Northwest Territories boundary, on a 1,256,016-acre block farmed out by Canada Southern, which retained a half-interest in the venture. The remaining half is divided among Signal, 50%; Home, operator, 25%, Alminex, Ltd., 10%, Kern County Land Co., 10%, and United Oils, Ltd., 5%.

The group also is drilling No. 1 Celibeta, 5 mi. northeast of No. 2.

While Slave Point production in the Ft. Nelson area has been the main target, other potential pays are not being overlooked.

Among zones warranting a good look are the Mississippian, the Upper Devonian, and the Elk Point of the Lower Devonian.

One test being drilled by Phillips Petroleum Corp., Scurry-Rainbow Oil, Ltd., and West Canadian Oil & Gas,



No. 2 PETITOT RIVER, a few miles south of the Northwest Territories, was completed for open-flow of 185-million cf/d of gas.

Ltd, for example, is scheduled to test all prospective zones to 10,000 ft., including the Slave Point and the Mississippian. This test, No. C-14-G Kledo, on Permit No. 268, about 40 mi. northwest of Ft. Nelson, was below 9,400 ft., at last report.

There have been other successes, too, in the northern half of British Columbia, notably in the Jedney-Bubbles, La Prise, and Pocket Knife areas.

Pacific Petroleums and Hudson's Bay No. C-37-L Pocket Knife was completed as a Mississippian gas discovery in February. The wildcat flowed 7.4-million cf/d on the first test; 8.3-million cf/d on the second test, and 3-million cf/d on the third. The tests covered a 294-ft. interval in the Rundle, topped at 4,979 ft. The well is 30 mi. northwest of the Jedney-Bubbles area.

Gas from the Jedney-Bubbles area has been entering the pipeline system of Westcoast Transmission Co., Ltd., since the late fall of 1959, when the company completed a 25-mi. extension to the fields.

The Northern Foothills Agreement Group—Mobil Oil of Canada, Ltd., British American Oil Co., Ltd., Shell of Canada, and Texaco Exploration Co. (the operator)—has just completed a Triassic gas discovery some 25 mi. northeast of the Jedney-Bubbles area.

Extension of a gas pipeline into the northeast area, possibly by next year, is certain to touch off even greater efforts next winter.

The remoteness of the area and the tortuous terrain have been major obstacles to early construction of any gas pipelines. But the increasing total of proved gas reserves and the continued increase in gas demand is likely to lead to early extension of Westcoast's system into the northern section of the province.

It was suggested last spring that an initial 2-trillion cu. ft. of gas reserves would be a suitable target for the forthcoming winter activity. It was believed that such an addition would go far toward encouraging early start on a pipeline.

The discoveries that have been made, plus come encouraging tests, indicate that the initial target may be reached, though there are as yet no official calculations.

Westcoast reportedly is preparing engineering data for extension of its 30-in. system, to be ready when the time is ripe for construction. Reports are that such an extension would go as far as Petitot, and possibly up to Celibeta, now that gas has been found there. Since many of the discoveries and tests are located near the Alaska highway, it's believed likely that any extension would follow the highway to the Ft. Nelson area.

A decision to extend a pipeline into the area could be speeded by success at some key wildcats now being drilled.

Pan American No. A-31-I Cam Lake, 10 mi. northwest of the Petitot discovery, was below 3,000 ft. at last report. This test is about the same distance south of the Home group's discovery at Celibeta.

Pan American No. A-51-A Komie Creek, about half way between the Clarke Lake and Petitot fields, was below 7,400 ft. in mid-March.

Other remote Pan American wildcats include its No. A-90-I, 40 mi. southwest of Petitot and 35 mi. northwest of its Komie Creek test, and its No. 1-A, B-63-K Beaver River, 88 mi. west of Petitot and 3 mi. south of the Yukon boundary. Reports are that Pan American has a Slave Point discovery at the latter test.

Other significant wildcats being drilled include Texaco (NFA) No. C-15-L Maxhamish, 38 mi. northwest of Petitot and 6 mi. south of the Northwest Territories boundary; Sinclair, Pacific et al No. B-34-H Minaker, 12 mi. north of the Pocket Knife discovery; Sinclair No. A-55-L Klua, 22 mi. south of the Shell-British American No. 50-C Klua Creek gas strike; Pacific No. C-93-C North Kotcho, 3 mi. north of Pacific's B-44-C discovery; and Western Natural's No. A-34-E Kathy, 12 mi. northwest of the Kotcho discovery and 8 mi. northwest of Pacific's B-44-C.

Some drilling also may be carried out this summer.

Western Natural took a stab at summer drilling last year. The venture turned out successfully, but at high cost. The well, No. 5-X Clarke Lake, completed for absolute open flow of 82-million cf/d, cost over $400,000.

The off-season drilling was made possible by location of No. 5-X close to the 10-mi. road built by the company into the area. Muskeg still posed problems, however, and largely accounted for the high cost, which compares with an average of less than $200,000 if operations are trouble-free, if the location is near a highway, and if there is open-hole completion.

The company is considering further summer tests, however. One of these will be drilled in the vicinity of No. 1 Prophet River, at Mile 290, off the Alaska highway. Western's Evie Lake prospect, west of Clarke Lake, is another possibility.

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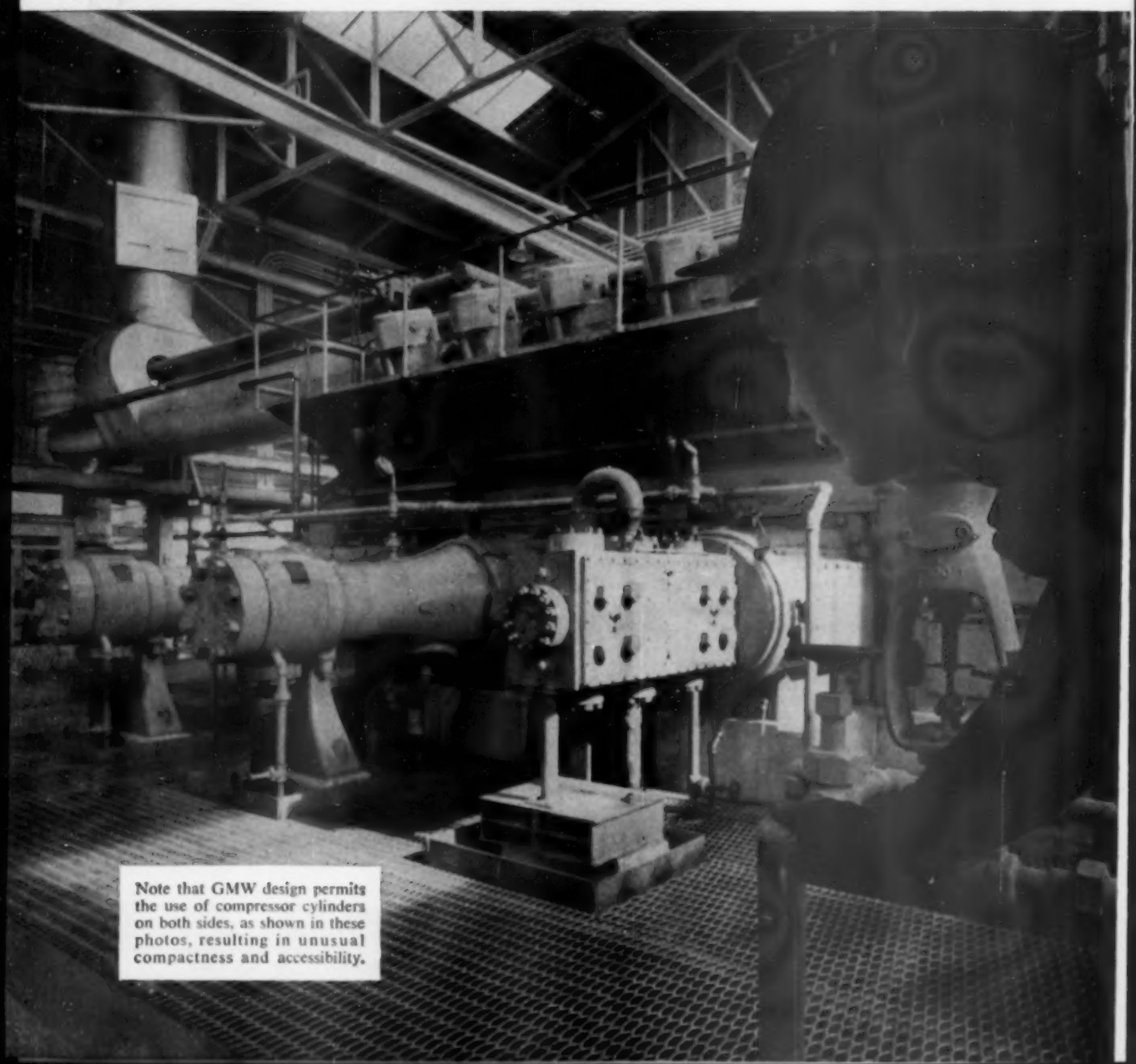

Note that GMW design permits the use of compressor cylinders on both sides, as shown in these photos, resulting in unusual compactness and accessibility.

compressors to 5000 psi

These photos show both sides of one of the two Cooper-Bessemer 2500 hp GMW gas engine compressors at the Fortier Plant of American Cyanamid Company, Avondale, Louisiana. In the production of anhydrous ammonia, these 4-stage units compress 6000 cfm of synthesis gas from 60 psi to a discharge of 5000 psi. The left-hand view shows the high pressure cylinders; that on the right shows the low pressure side. The four stages of compression from 60 psi are (1) to 225 psi, (2) to 670 psi, (3) to 1500 psi, (4) to 5000 psi.

The two units have been operating since 1954, 24 hours a day, 340 days a year.

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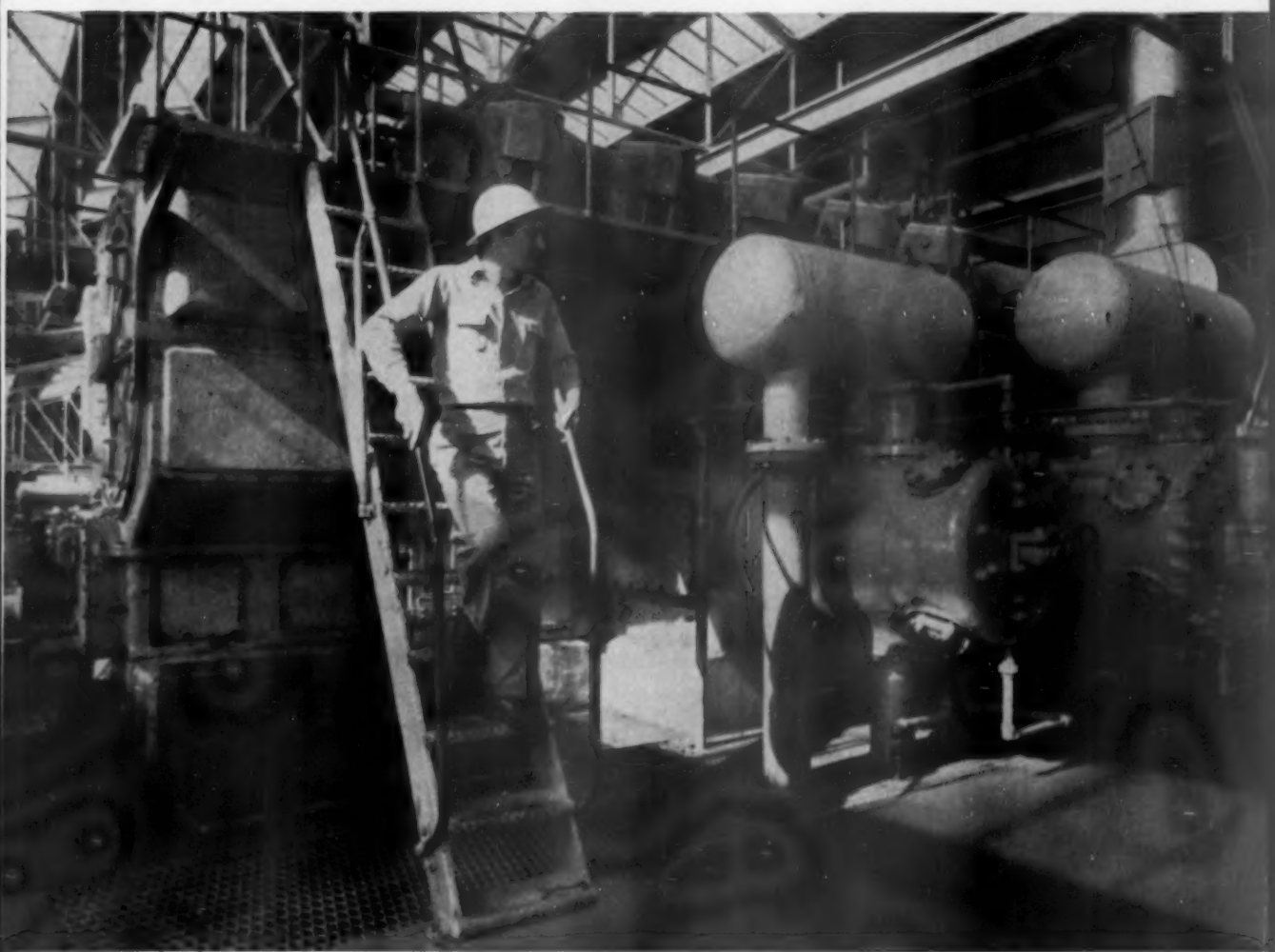

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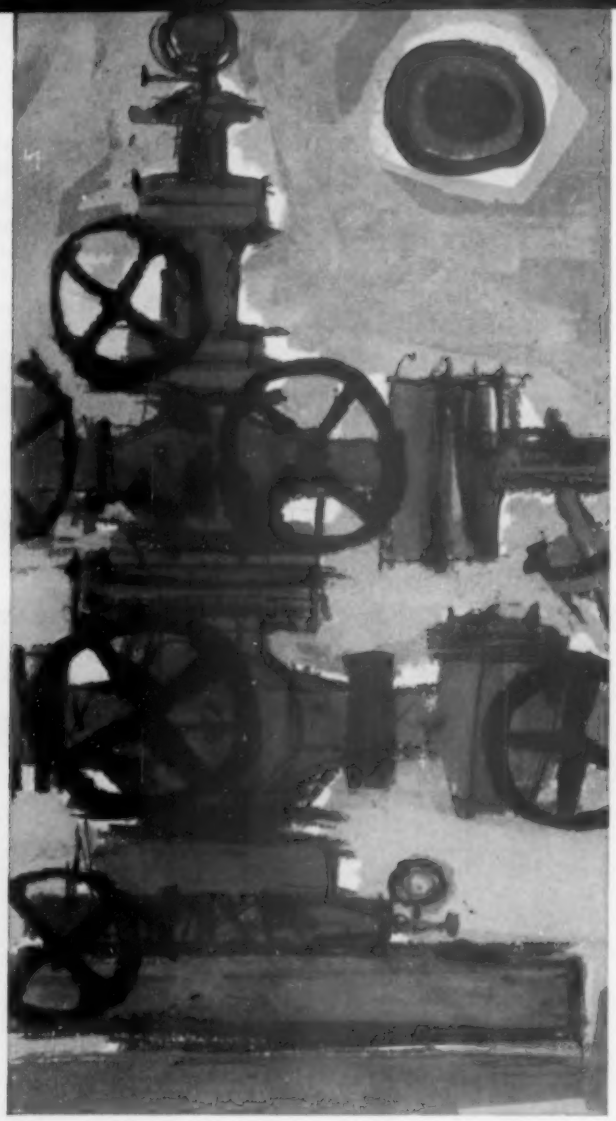

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Suburbia Forces Oil Development

Union Oil Co. of California has been forced into a protective drilling program to defend its mineral rights in California's Brea-Olinda field from home and industrial development.

The company has a 22-hole program on its 990-acre Stearns mineral fee properties, Orange County. Its sole purpose is defense against rapid home and industrial encroachment, not because more oil is needed, Union says.

This is the first drilling on the property in two years.

The first well in the program has already been completed.

The completed well, No. 168 Stearns, section 7-3s-9w, is now producing 220 b/d of oil and 40,000 cf/d of gas from 4,047 ft.

The program calls for drilling the holes to a maximum of 4,500 ft. into the Miocene.

An exception to this is No. 175 Stearns, which, at last report, was being drilled below 6,576 ft. toward a target depth of about 10,000 ft.

Production from the Stearns property, where the drilling is being conducted, started 60 years ago.

The company was still seeking oil by tunneling into the mountains at $5 per foot when, in 1894, it bought the Stearns property from Stearns Ranch Co.

But about that time, industry-wide oversupply prevailed and crude prices fell below $1 per bbl., making operations uneconomic.

It wasn't until four years later, when crude prices started advancing, that Union decided to drill on the property.

After taking exactly one year to drill a hole that produced 112 b/d from 1,110 ft., the company finally brought in what it terms as the actual discovery for 200 b/d from 1,271 ft.

The history of the property provides a vivid reflection of the traditional ups and downs of the oil industry.

Between February, 1900, and October, 1901, 23 wells were completed, none any deeper than 1,700 ft. Some of these still produce.

But hardly had development begun when crude prices slipped again.

As prices rose, new wells were drilled, old ones were uncapped. As prices weakened, development was stopped and wells were shut in.

But since Union owned the land in fee, operations could be tailored to the times.

The Stearns property is historical in another way too. It's the first California field to be used as a reservoir to store oil and gas produced from other fields.

During the period of oversupply in the late 1920's, Union was able to meet its various lease commitments by pumping surplus production into the Stearns reservoir. New drilling was suspended.

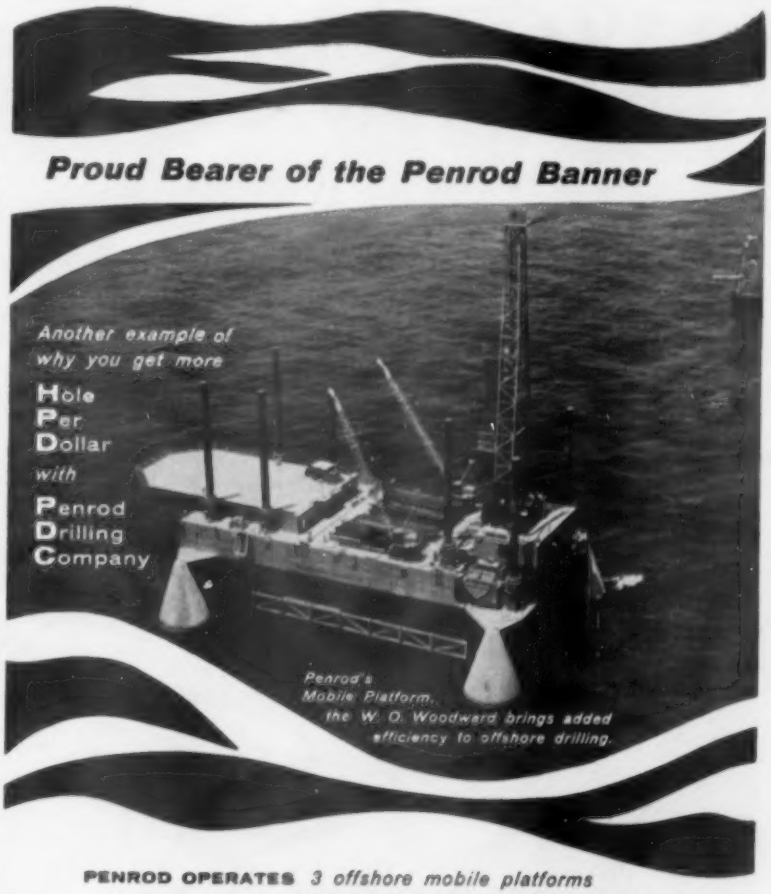
Between April, 1928, and March, 1930, the company pumped into the reservoir 584,300 bbl. of oil and more than 6-million cu. ft. of gas. This was withdrawn during World War II for Armed Forces use.

Despite its long production history, it's estimated that the property still has many more years of productive life.

Since completion of the discovery 60 years ago, the wells that have been completed have produced a total of 56.8-million bbl.

Current production from the field is about 5,600 b/d.

The ultimate yield of the field was estimated in 1924 at around 95-million bbl.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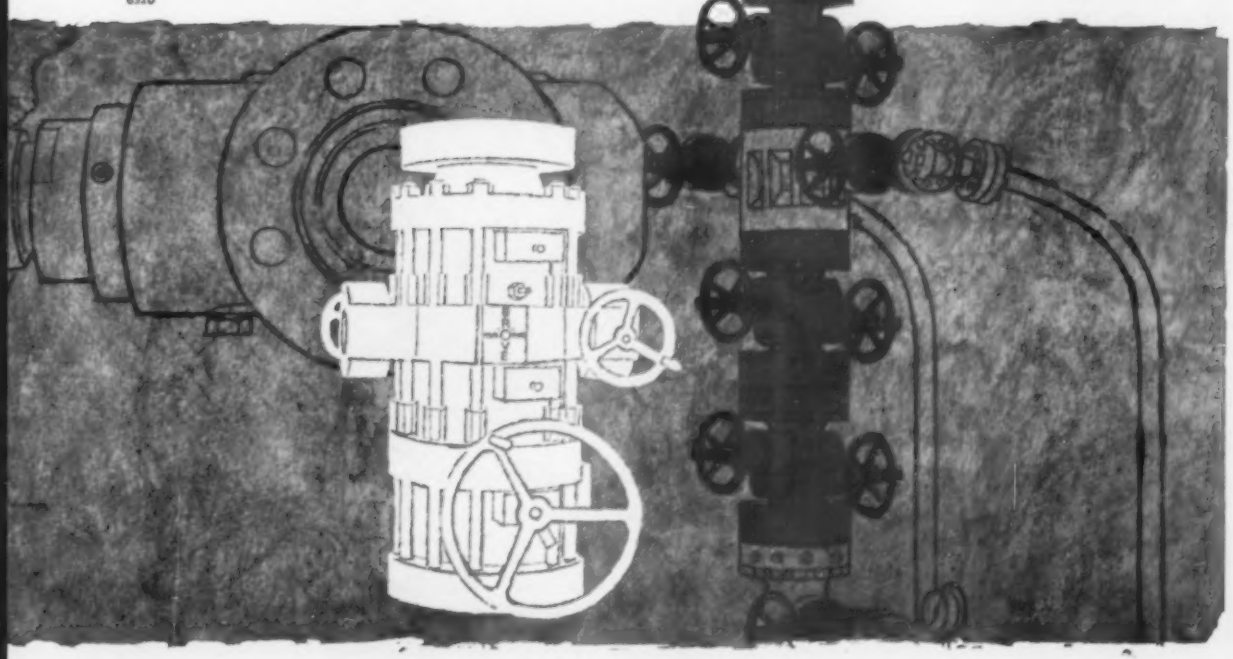


Data Processing System Has Dual Role

Atlantic Refining Co. has put into operation an integrated oil production and engineering data processing system.

The system, which services the company's Texas Gulf Coast region, is designed to collect, convert, and make available detailed daily production information, as well as engineering data on wells, leases, and reservoirs.

It includes leased-wire teletype facilities linking Atlantic's Corpus Christi and Houston district offices with the regional office in Dallas.

In Dallas, various data processing machines are used, including an International Business Machines 650 computer.

The system allows close yet simplified control over the company's oil production in the area.

Such information as production and pipeline runs is still reported by the lease pumper to the district offices.

In the new set-up though, the lease pumper uses only three abbreviated forms, and such jobs as calculating correct run tickets to net barrels are performed mechanically in Dallas.

The district offices collect, review, and verify the information from the various leases. They then punch this information onto tape. Teletype machines transmit it to Dallas, where the receiving machine automatically punches it onto tape again.

The tapes received in Dallas are put through a tape-to-card converter, which automatically punches cards that can be fed into the IBM 650 computer and other accounting machines.

After this information—sent in from the district offices—has been calculated and punched on cards, it is then converted back onto tapes. The transmission of these tapes furnishes the finished reports to the district offices.

This provides the district offices with a current production status report for each pumping assignment.

By doing this, the monthly well report is eliminated. Instead, the pumper is now furnished, weekly and at the end of the month, a mechanically prepared report that shows his over or short position and provides him with better control over oil the company is allowed to produce.

This mechanization of accounting reports and procedures has definitely speeded operations.

In the past, information was manually prepared and mailed to Dallas. Including processing time, it would take about ten days to get one day's production data in and back out to the district offices. Now this data is in and out in two days.

A second phase of the production part of the system involves the monthly allocation of oil, gas, and water to the individual well, lease, and reservoir.

The district transmits allocated oil and gas production, water production, allowable data, number of days produced, and average hours produced per day.

From this, the computer produces new punched cards which are used to print such production statistics monthly and cumulative production by well, lease, and reservoir.

One phase of the system that is highly regarded by Atlantic is that it will enable rapid and economical selection, extraction, and manipulation of card-filed data for engineering studies.

The company believes this may be the first time a region-wide mechanized system will be set up to give engineers data that has been available, but not easily collected and computed into meaningful information.

Data processing has often been used to study one reservoir or a single isolated area, but Atlantic's operation is designed to provide the information throughout its regional operations.

Atlantic is now testing the engineering segment of the system. Full use awaits more equipment.

In the engineering role of the system, input data will consist of district, reservoir, lease, well number and status, date of test, production day allowable, status before test, actual test data, and 24-hour rate.

This information will be keypunched onto IBM cards in Dallas from well test reports mailed in.

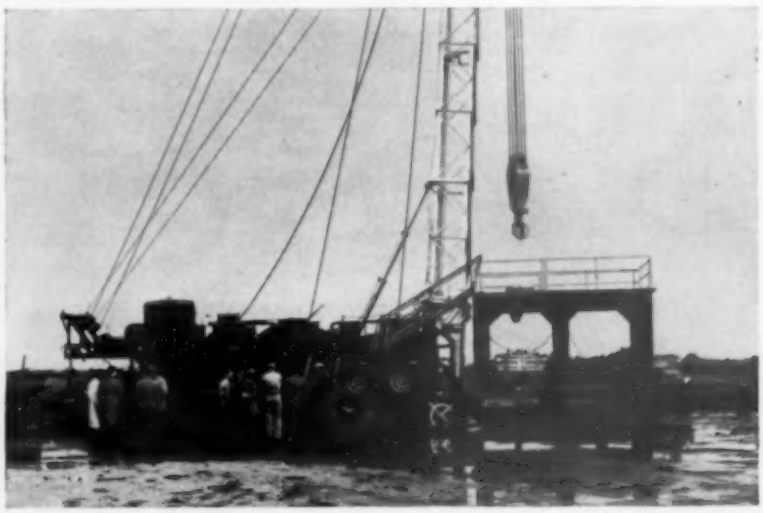
After merging the master cards with current production cards, the information will be listed in the form of a monthly well test report.

The test will be listed mechanically by district, reservoir, lease, and well. Test data will be listed chronologically by well.

The system, which now is on a pilot basis, is expected to be expanded to eventually include about ten more district offices.

It also may be used for other assignments, such as mechanical inventory control for field warehouses.

The Dallas office, in fact, says it plans to start on centralized inventory control of tubular goods and other supplies about July 1.



Rig Has 15,000-ft. Workover Capability

Wilson Mfg. Co.'s new Mogul 42 Trailer Rig has a depth capability of 12,000-15,000 ft. on workovers and about 6,000 ft. in drilling with 4½-in. drillpipe. The rig has a 102-ft. hydraulically erected telescope mast. It is powered by a Hall Scott 2269-0 engine, which has a continuous horsepower rating of 410. Hook load capacity is 250,000 lb. The rig is equipped with a 15-ft. ramp-type substructure and the latest blowout preventer equipment.

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Mud Additives Ease Stuck-Pipe Problem

Newly developed mud additives may be the answer to one of the major causes of stuck drillpipe—the differential pressure between the formation and the bore hole.

Studies and tests have proved that the forces set up by differential pressure can press the drill pipe into the thickening mud cake in the hole, frequently sticking the pipe.

In any hole where the mud pressure is substantially higher than the formation fluid pressure, a mud cake forms opposite the permeable section of the hole, and a continuous flow of filtrate passes through the mud cake and into the formation, thus thickening the mud.

One of the first approaches to a solution came from research on oil-base muds.

One major oil company that has done considerable research on differential pressure, for example, concludes that oil-base muds reduce the frequency of stuck drillpipe.

The company found that the force required to free the pipe varied with the differential pressure, the square root of the "standing time," and a variable factor depending on the mud used.

But, they said, regardless of the standing time, pull-out force can be reduced by lowering the differential pressure.

The injection of oil into the hole sometimes frees stuck pipe because the oil is under pressure and immiscible with the mud cake, thereby squeezing water out of the cake.

This develops shrinkage forces in the cake and causes it to fracture.

This, in turn, allows the oil either to flow into the formation and build up pressure to reduce the differential pressure, or to penetrate between the pipe and the mud cake.

One of the additives now being used with success is air-blown asphalt in an oil base mud. The chief advantage claimed is the reduction of filter loss.

The mixture is called Black Magic Supermix by its manufacturer, Oil Base, Inc.

It works directly to prevent the build-up of differential pressure, says Oil Base, because "when there is no fluid filtering into the formation, you can't have differential sticking."

The company says it freed stuck drillpipe within 24 hours in seven holes during the first two months of this year. Examples are:

- A Vermilion Parish (La.) test where 50 bbl. of 17.6-lb. Supermix was spotted for 20 hours.
- A test in Jefferson Davis Parish where the pipe was freed after 100 bbl. of 17.8-lb. Supermix was spotted for two hours.

Both holes were below 14,000 ft. when the pipe stuck.

Other additives also are being used with success.

Magnet Cove Barium Corp. and the Baroid Division of National Lead Co., among others, have developed products to meet the problem.

For example, Baroid says pipe was freed in a 10,000-ft. test in Hardin County, Tex., after 100 bbl. of Trimulso and light diesel oil was spotted in the hole for six hours.

At Weeks Island, La., Magcobar says it blended 16 lb. per bbl. of Bit Lube with 20 bbl. of diesel oil to free pipe stuck below 12,000 ft.

For those with tough mud standards

Baroid's new concept of marketing is unique among mud companies in the degree to which Baroid meets your most exacting standards. Are you concerned with quality of product? With accurate delivery? With modern facilities? With ready availability? With skilled engineering? Baroid's marketing concept achieves these standards efficiently by a single integrated operation.

No other mud company matches the extent to which Baroid accepts the responsibility for every step in the mud process from mines, plants and laboratories to your well. Companies in every key industry are maintaining their leadership by integrating and streamlining. The oil industry follows this concept in serving the public, by maintaining quality of product and service through unified control. Baroid is the first to apply this to the mud industry.

This commonsense approach to mud marketing *saves your drilling dollars.* Your planning, purchasing and accounting operations are simplified. Whatever your mud problem, whatever your mud standards, Baroid has the answer.

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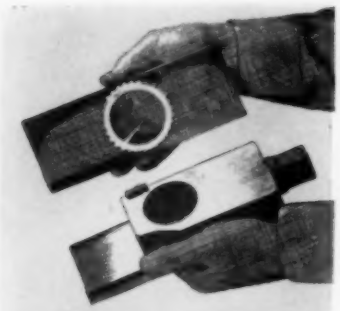
CAMERON TYPE "F" GATE VALVES

GIVE MORE SERVICE FOR LESS MONEY

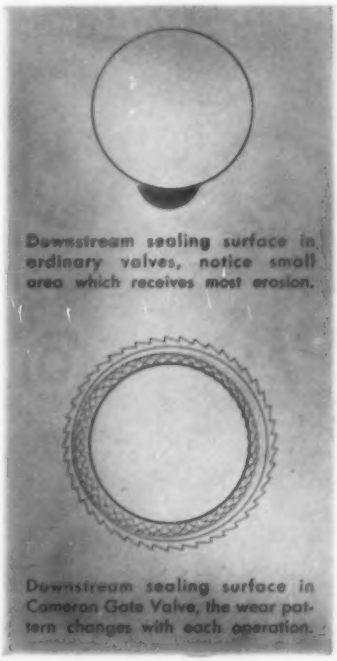
THIS IS THE REASON—
Cameron Type "F" Gate Valves for API service have reduced operating cycle costs to the lowest of any valve in similar service.

HERE'S HOW—
The rotating seat design found only in Cameron Type "F" Gate Valves exposes a new sealing pattern each time the valve is operated. Old design concepts are based on wedge fits to increase gate or plug contact pressure, viscous lubricants to bridge abrasions and reduce inherent friction, soft seals, or combinations of these conventional solutions to a tough problem. After extended tests and evaluation of every contemporary valve for API service, a summary revealed that all valves had one common characteristic. The down stream seat showed the most wear—maximum erosion always occurred in the same point—where pressure was first released in opening or where pressure was finally pinched off in closing.



Easy in-line replacement of this simplified gate package reduces cost when repairs are finally necessary.

Then a new idea was conceived. Rotating the seat a fraction of a turn each time the valve was opened and closed would present a new surface at the critical point of greatest wear. This principle is the central feature of the Cameron Type "F" Gate Valve.



Downstream sealing surface in ordinary valves, notice small area which receives most erosion.

Downstream sealing surface in Cameron Gate Valve, the wear pattern changes with each operation.

WHAT ABOUT COST?
All marketable valves when purchased must hold and release pressure. But purchase price does not represent total cost to use a valve. To purchase price must be added operating cost (continuous lubrication, frequent and difficult repair, slow operation) for the useable life of the valve. Divide this total by the number of times the valve is operated and you have a true picture of the original purchase. Actually you are buying operating cycles. If you want the most operating cycles without maintenance—the lowest cost per cycle during the entire life of the valve no matter how tough the service, try Cameron Type "F" Gate Valves.

Cameron Gate Valves are available in sizes from 2 to 6 inches, and pressures to 15,000 psi, including manually or pressure operated models (hydraulic or pneumatic) for remote controls and automated circuits.

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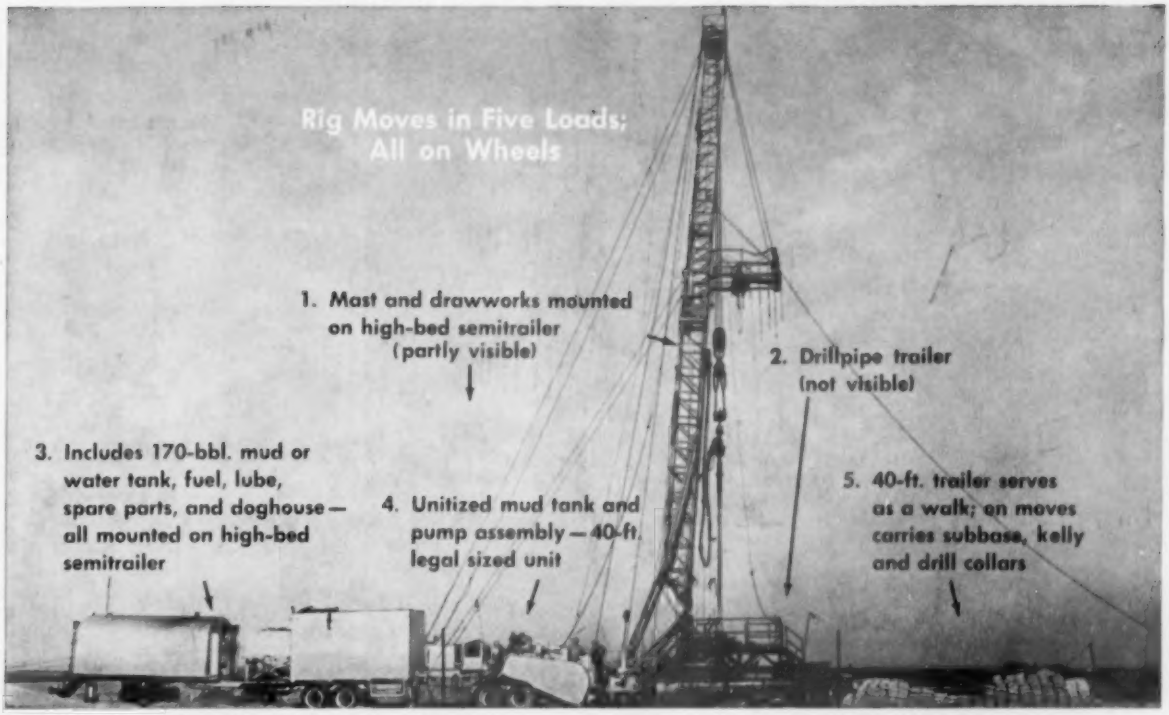
Rig Moves in Five Loads; All on Wheels
1. Mast and drawworks mounted on high-bed semitrailer (partly visible)
2. Drillpipe trailer (not visible)
3. Includes 170-bbl. mud or water tank, fuel, lube, spare parts, and doghouse—all mounted on high-bed semitrailer
4. Unitized mud tank and pump assembly—40-ft. legal sized unit
5. 40-ft. trailer serves as a walk; on moves carries subbase, kelly and drill collars

KEY DESIGN FEATURE on this portable, revamped rig is the use of kingpins on the drillpipe and mud trailers, hence there are . . .

No Cranes, A-Frames for This Rig

A California drilling contractor has cut costs by revamping a small rig to eliminate the need for cranes or A-frames on moves or rig-up.

The rig, a National T-12 with Bender guyless mast, rated for 3,000 ft. with 4½-in. drillpipe, is owned by Armstrong-Fowler, Inc., of Bakersfield.

First step in eliminating the need for cranes or A-frames was unitization of the mud tank and pump assembly into a 40-ft., legal-sized unit.

The contractor then built a new subbase, which is unique in that drillpipe is racked through it, thus eliminating the additional steel that would be required to support drillpipe at floor level. The subbase, which is 7 ft. wide in traveling position, folds out to make an 18 x 18-ft. floor.

On moves, the subbase is mounted on a 40-ft. trailer that also carries the kelly and drill collars. When the rig is in operation, the trailer serves as a walk. The trailer is 8 ft. wide, allowing for an error of 1 ft. when the subbase is backed into the rig.

The contractor also designed and built a drillpipe trailer which, in operating position at ground level, will be able to accommodate 1,800 ft. of 4½-in. pipe.

There are two other loads: (1) the mast and drawworks, mounted on a high-bed semitrailer; and (2) a 170-bbl. mud or water tank, plus fuel, lube, spare parts, and doghouse, also mounted on a high-bed semitrailer.

The key design feature is the use of kingpins on the drillpipe and mud trailers.

The kingpins rest on the ground when the trailers are in operation at a drill site. For moves, the contractor uses a winch line to suck up the kingpin to the "fifth wheel" on the tractor, readying the load for moving.

The contractor estimates that cost of rig changes will be paid out in less than a year by the reduction in moving and rig-up costs.

The elimination in the need for cranes or A-frames has not increased moving time, the contractor reports, adding that moves have been made in less than three hours from release to spud-in. When the rig is "unrigged," which takes about a half hour, it is, in effect, "loaded out"; that is, ready to move.

One of the main factors that prompted the changes was the number of rig moves made last year, when the rig was one of the busiest in California.

In 301 operating days last year, the Armstrong-Fowler rig was used to cut 31½ mi. of hole, drilling 112 holes and redrilling 11 others.

Radioactive Gas Traces Drainage

Chances are good that the use of radioactive gases will grow in determining the feasibility of various secondary recovery and production stimulation projects.

This was suggested this week in Cleveland, Ohio, at the meeting of the division of Petroleum Chemistry, American Chemical Society, by W. D. Howell, F. E. Armstrong, and J. W. Watkins.

The three scientists from the Bureau of Mines Petroleum Research Center, Bartlesville, Okla., reported on the use of Krypton 85 to trace drainage patterns in the fractured formations of Texas' Spraberry Trend (PW—Jul.17'59,p18).

The scientists said that radioactive inert gases should be applicable in tracing reactions and flow in such operations as pressure maintenance by

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gas injection, miscible-phase or solvent injection, and in-situ combustion, as well as for waterfloods.

Use of radioactive gas in the Spraberry Trend of West Texas contributed to the planning of the first waterflood in the area.

This flood, which will be conducted by Southland Royalty Co. in the Aldwell area of Reagan County, is scheduled to start by June 15. The project covers 15,776 acres.

Cores taken from the Spraberry formation showed a fracture frequency of 1 in. to every 4 in. in a general northeast-southwest direction. Porosity of the pay is 12%, and permeability averages less than 1 millidarcy.

The tracer gas corroborated the core findings.

Radioactive tracers have been used before to define fracture patterns in existing floods. But in this case, the gas was used to determine the fracture orientation from the start.

The common practice of using a liquid tracer in a pilot flood was not applicable because the reservoir characteristics and depth would have required a pilot operation so large that it would hardly rate as a pilot project.

A nine-spot pattern—a central injection well and three producing wells on each side on 80-acre spacing—plus four other wells farther from the injection well, were used in the tracer survey.

The injection well was completed in the lower Spraberry at about 7,200 ft., with the upper pay formation packed off.

Of the 12 producing wells used as monitoring points, 11 produced from both zones and 1 from the lower zone.

All of the gas injected was tagged with the tracer, and monitoring was conducted continuously at nine widely separated locations.

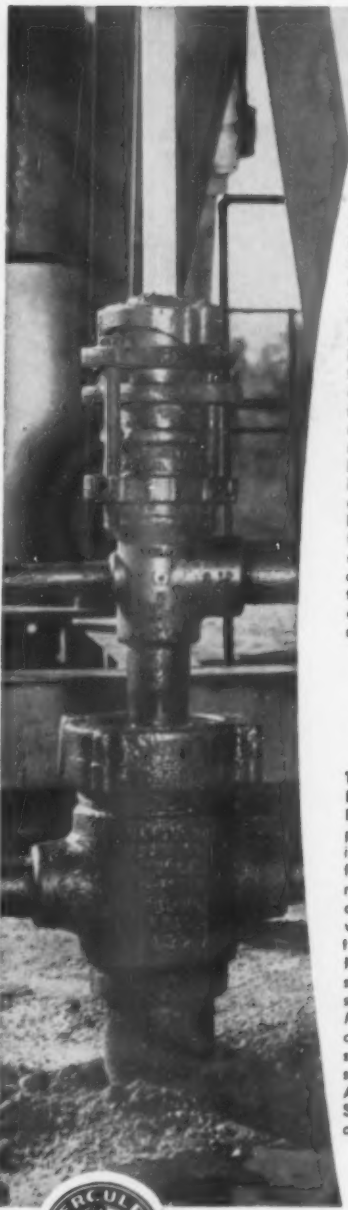
Of the 12 monitoring wells, the tracer was detected in two—one northeast of the injection well and the other southwest.

The tracer was detected through increased radioactivity at well No. 2—1,884 ft. northeast of the injection well—64 days after tracer injection started. The radioactivity increases were not great, and were cyclic, occurring about once every week.

The tracer was detected at well No. 9—4,161 ft. southwest of the injection well—103 days after tracer injection began. Here, radioactivity increases were also cyclic, but were much greater than at well No. 2.

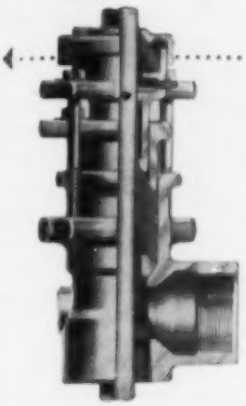
No radioactivity increases were detected at any of the other 10 wells monitored.

HERCULES products in ACTION

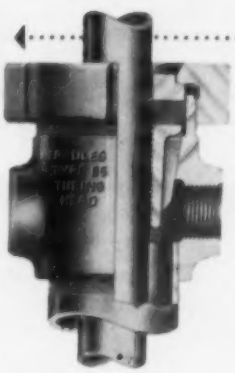


A typical set-up is shown below in Creek County, Oklahoma, using Hercules "Tee Type" Duplex Polished Rod Stuffing Box and Type "ES" Tubing Head. This is an easily assembled, effective and economical producing unit.

"TEE TYPE" DUPLEX POLISHED ROD STUFFING BOX—A combination Tee and Stuffing Box with female thread to screw directly onto the tubing, eliminating one threaded connection and resulting in a considerably shorter hookup. With internal parts removed, the Stuffing Box body is full opening and need not be removed to pull rods. In addition to being furnished in the most used sizes, special combinations of threads and outlets can be furnished on request.



TYPE "ES" TUBING HEAD—This Tubing Head is ideal for any pumping situation. It is economical enough for shallow wells and rugged enough for any depth well, with working pressure up to 1500 pounds. Hercules self-aligning slips suspend the inner string in this Head. Mandrel suspension can be furnished instead of slips, if desired, at no extra cost. A neoprene Tubing Stripper Unit is also available.



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The robbery he's stopping is *undercutting* for which American industry pays millions in recoating and maintenance costs each year. He's stopping this robbery with Koppers' *new* Bitumastic 11S inhibitive primer, the primer that *ends* undercutting problems.

Bitumastic 11S forms a tight, tough bond with the surface to be protected, preventing the spread of corrosion in the event of damage to the exterior protective coating system. Designed for application in severely contaminated industrial and marine atmospheres, this new inhibitive primer also protects cleaned surfaces from "fall-out" before final coatings are applied. Bitumastic 11S solves another difficult coating problem, by thoroughly protecting structural edges and corners where top coatings are extremely vulnerable to damage. A solvent-type primer, Bitumastic 11S is simply applied by brush, and is compatible with almost all types of top coatings.

Two other New Coatings from Koppers Research

Bituplastic No. 33, a new coal tar polymer emulsion coating, is exceptionally resistant to water absorption and offers good adhesion to most substrates. Ideally suited for extreme exposures to heavy industrial atmosphere, Bituplastic No. 33 will not flow or sag at temperatures up to 400 degrees F. This new product gives excellent protection to structural steels, concrete, and other materials subject to attack by corrosive salts and chemical environments. It is applied easily by brush, roller or spray.

Bituplastic No. 44, a mastic coating of troweling consistency, serves as an excellent adhesive and is ideally suited for such uses as adhering cellular glass insulating blocks to the exterior of storage tanks. Bituplastic No. 44 also offers unusual resistance to water absorption, heat and chemical fumes. Another member of the coal tar polymer emulsion coating group, Bituplastic No. 44 is also available on request in a fibrated form, designated as Bituplastic 3S.

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A Koppers specialist will show you how to use these coatings in solving your industrial or marine corrosion problems. From the well-known family of Bitumastic coatings, he'll choose the coating designed for your application. For more information on these new coatings or on our standard coatings, fill out the coupon or write: Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa. District Offices: Boston, Chicago, New York, Los Angeles, Pittsburgh and Woodward (Birmingham) Ala. In Canada: Koppers Products, Ltd., Toronto.

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

At Aneth: Secondary Recovery Is Nearer

First steps toward a pressure maintenance program and eventual secondary recovery have been taken by operators in the Aneth area, Utah.

An engineering committee, set up by the operators, has recommended a tentative plan of unitization. The recommendations include a suggestion that only those 80-acre tracts which now have a producing well be included within the unitized area. Further drilling, therefore, could enlarge the unit over a period of time.

A participation formula based on the acre-ft. of Desert Creek pay and 85% of the Ismay pay controlled by each operator has been suggested. This would involve more than 710,000 acre-ft. of Desert Creek reservoir and nearly 45,000 acre-ft. of Ismay.

Texaco Inc. is the largest interest holder under the suggested formula, with 65% in Aneth proper. Shell Oil Co. has a little more than 12%; Superior Oil Co. more than 8%; and Three States Natural Gas Co. and affiliates a bit more than 4%. Other companies hold from a fraction of 1% to almost 2%.

•

Pan American Petroleum Corp. has paid $5.1-million for a 60% interest of Kewanee Oil Co.'s deep rights in the Maljamar area, Lea County, N. M.

Kewanee retained a large overriding royalty interest in the properties, covering 3,280 acres.

The area has been marked by brisk activity following a significant Abo reef discovery last December. Kewanee recently sold its shallow rights to this and other acreage in the area to Continental Oil Co. for $10-million in cash and $25-million in oil payments.

•

The Russians say they have a new electro-magnetic pump for use in oil wells 10,000 ft. and deeper.

The action of the new pump is boosted by use of liquids having high electric conductivity, according to Tass, the Soviet news agency.

The report adds that the pump is basically the same unit designed by nuclear engineers for operation within atomic reactors. AC or DC current is fed through an insulated cable to the submerged, membrane-type pump. The membrane is moved by the electro-magnetic field.

•

Signal Oil & Gas Co., as operator for itself and Richfield Oil Corp. (L. A.), has applied to Los Angeles for 11 drilling districts covering 1,506 acres.

The request is the second largest drilling area ever sought in the city. The area spreads out from Signal's operations on Hillcrest Country Club and Rancho golf course.

Signal said it had 85% of the property in the area. In order to apply for a drilling district, an oil company must have leased a minimum of 75% of the land in the area.

•

The Texas Railroad Commission has been asked to approve requests for three waterfloods that could yield more than 31-million b/d of additional oil.

Standard Oil Co. of Texas sought approval of a unit agreement and pilot waterflood for the Baker sand in Sherman (7,500-ft.) field, Grayson County. The company estimates that ultimate additional oil that would be recovered as result of the flood, if it takes in the entire unit area (3,209 acres of 3,870 in the field), would total 26-million bbl.

American Petrofina Co. of Texas requested a waterflood for the Lower Pettit in Good Omen field, Smith County. The company estimated additional oil recovery as a direct result of the proposed program at 3.5-million bbl.

Sinclair Oil & Gas Co. estimated it would recover an additional 2,055,700 bbl. of oil from a unitized waterflood program for the Canyon sand in its Sweetwater Unit, Sweetwater field, Fisher and Nolan Counties.

•

Merit Oil Ltd., Calgary, has acquired Cascade Drilling Co., Ltd., which has 16 drilling rigs.

Merit bought Cascade from Pacific Petroleums Ltd. for $300,000 cash and 1,150,000 shares of Merit.

•

Florida's Supreme Court has voided a state law taxing oil, gas, and mineral rights separately from surface rights.

The court held the 1957 law was not a lawful exercise of the legislature's power to tax. The law provided that the owner of the subsurface rights should file a return of their valuation with the tax assessor each year.

•

Producing Properties, Inc., has acquired the California holdings of Ring Oil Co. for $1¾-million.

The acquisition includes 176 wells located on 35 leases, primarily in Mt. Poso and Edison field, Kern County, and Santa Fe Springs and Wilmington fields, Los Angeles County. Current net production is 1,200 b/d of oil, plus "a minor amount of gas."

The purchase is the latest of a series PPI has made in California within the past three months. The company now operates about 600 wells in the state, with a daily net yield of some 6,000 bbl.

•

A. O. Smith International S. A. has established a European subsidiary and concluded two new licensing agreements, one in Europe and one in South America.

The company, which handles the foreign business of A. O. Smith Corp., set up the subsidiary, AOS A. G., in Zug, Switzerland. The new firm will handle licensing agreements and other

182-Billion Bbl. of Oil Now Unrecoverable

More than 180-billion bbl. of crude already found in the U.S. cannot be produced by present methods.

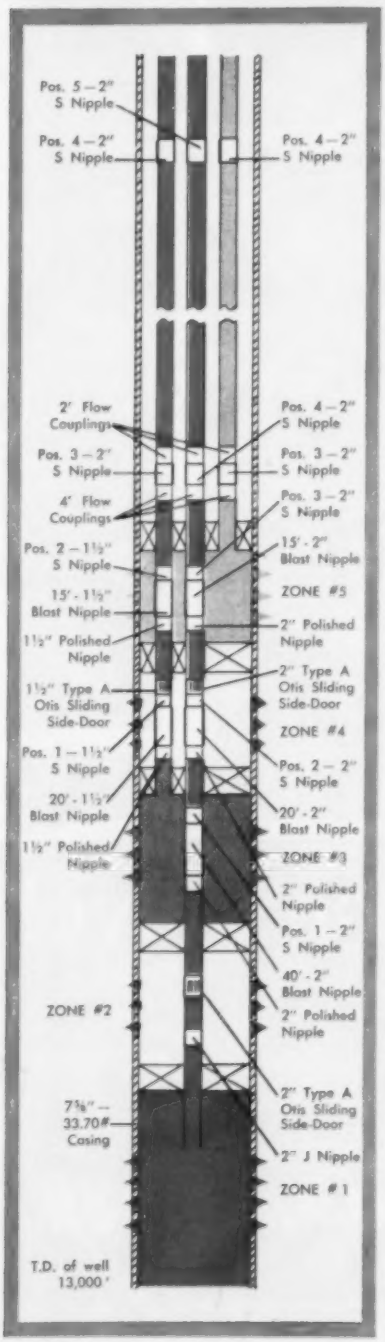
Martin Goland, president of Southwest Research Institute, San Antonio, told a Congressional subcommittee last week that 182-billion bbl. of oil can't be recovered because technology hasn't advanced sufficiently to make it economically feasible.

Goland added, however, that research on the problem is continuing, "without dependence upon the government."

SPECIAL REPORT TO MANAGEMENT

OTIS PRODUCTION NEWS

Volume II, Number 1 **Otis Engineering Corporation • Dallas** *Production Equipment and Services*


Pos. 5 – 2" S Nipple
Pos. 4 – 2" S Nipple
Pos. 4 – 2" S Nipple
2' Flow Couplings
Pos. 4 – 2" S Nipple
Pos. 3 – 2" S Nipple
Pos. 3 – 2" S Nipple
4' Flow Couplings
Pos. 3 – 2" S Nipple
Pos. 2 – 1½" S Nipple
15' - 2" Blast Nipple
15' - 1½" Blast Nipple
ZONE #5
1½" Polished Nipple
2" Polished Nipple
1½" Type A Otis Sliding Side-Door
2" Type A Otis Sliding Side-Door
ZONE #4
Pos. 1 – 1½" S Nipple
Pos. 2 – 2" S Nipple
20' - 1½" Blast Nipple
20' - 2" Blast Nipple
1½" Polished Nipple
ZONE #3
2" Polished Nipple
Pos. 1 – 2" S Nipple
40' - 2" Blast Nipple
ZONE #2
2" Polished Nipple
2" Type A Otis Sliding Side-Door
7⅝" – 33.70# Casing
2" J Nipple
ZONE #1
T.D. of well 13,000'

Copyright 1960 Otis Engineering Corporation

Alternate Zone Triple Completion Shows Economic Advantages of Using Otis Equipment and Wire Line Services

LAFAYETTE — This offshore, multiple-zone gas well, located off the coast of Southern Louisiana, illustrates the economic advantages of using Otis sub-surface flow control equipment and wire line services.

The cost of the installation, including the tubing safety valves, sleeves, nipples, and other Otis sub-surface equipment as shown in the accompanying diagram, totaled slightly under $12,000 — or about $65,000 less than what it would cost to move a workover rig onto the well to deepen it and recomplete the lower zones, had the well been drilled and completed differently. As equipped, this well can be produced until all five zones have been depleted, with only occasional wire line service to permit production from each of the different zones.

T.D. of the well was approximately 13,000 feet with five different zones of potential production below 12,600 feet. When called to engineer the completion, Otis specialists were asked to design an installation that would permit alternate production of three of the zones through the long string and one through each of the other strings, or two zones through the long string and two through the intermediate string, with the top zone to be produced through the short string.

Two single packers were used to isolate zones 1 and 2 and a Type A Otis Sliding Side-Door and Type J Otis Landing Nipple made up in the tubing between the two packers. This arrangement will permit the bottom zone to be produced first through the long string, and then zone 2 by setting a Type PJ Otis Plug Choke in the landing nipple and shifting the sleeve in the Sliding Side-Door. The Type PJ choke is designed to hold pressure from either direction.

A blast nipple with a Position 1 Type S Otis Landing Nipple above and a polished nipple below was designed into the long string opposite zone 3. This is the zone to be produced through the intermediate string. In the event flow from zone 3 should cut through the blast nipple, the landing nipple and polished nipple will be used to pack off the hole and permit continued production of either of the lower zones through the long string. The landing nipple above the blast nipple may also be used to land a plug choke in the event both lower zones deplete sooner than anticipated and the operator decides to produce zone 4 through the long string.

Otis sliding side-doors were designed into both the intermediate string and the long string between the packers isolating zone 4. This will permit selective production of that zone through either string of tubing. S nipples, blast nipples, and polished nipples were also made up on both the intermediate and long strings opposite zone 4 to provide the tubing with the same protection as described for zone 3.

In that this was a gas well, S nipples with flow couplings above and below were made up in all three strings of tubing, immediately above the top packer, to accommodate Type FS Otis Tubing Safety Valves. This provided Storm Choke protection for each string. By locating the safety valves just above the top packer, the operator will be able to carry on a corrosion inhibitor program without pulling the safety valves. S nipples were also located in each string approximately 1,500 feet from the surface for plugging purposes until gathering lines could be laid.

This Otis-engineered completion was designed to provide the ultimate in economical, versatile, and efficient alternate-zone production. For more information on alternate-zone, multiple completions or for help with any other specific completion problem, call the Otis office nearest you or write Otis, Dept. 1-W, Box 35206, Dallas 35, Tex. Experienced Otis specialists are ready and anxious to provide you with a "packaged" well completion service.

OTIS

Engineering OTIS Corporation

General Offices:

6812 Denton Drive • Dallas, Texas

Management

on the move!

Wanda Petroleum Company keeps pace in fast-moving liquefied petroleum gas business with its

AERO **COMMANDER**

AERO DESIGN & ENGINEERING CO, BETHANY, OKLAHOMA • Subsidiary of ROCKWELL-STANDARD Corporation

Wanda Petroleum increases sales with Aero Commander

This Houston, Texas, firm markets liquefied petroleum gases (butanes and propane) for industrial, chemical, refining and domestic uses. In the highly competitive LP-G industry frequent contact with widespread supply sources as well as with wholesale markets is essential. Wanda keeps the airlanes hot in a circuit including Tulsa, Chicago, New York, Atlanta, Shreveport, Dallas and other market centers.

T. C. Morrow, president, says that Wanda's transportation requirements can be adequately met only by a company plane. The firm's Aero Commander, purchased in 1957, provides the necessary capacity, speed and flexibility. The plane, Morrow states, is in the air 600 hours a year. From one to six Wanda executives and a full-time pilot fly their own schedules at speeds over 225 mph.

Measures worth of company plane like any tool of business

C. H. Swanson, vice-president, sales, states: "Our Aero Commander is one of the company's modern business tools. Recently, by making stops in four major cities in one day, we closed one of the largest sales in our history. Getting the order depended on being there in time. We couldn't possibly have done it without our own airplane."

Wanda's next aircraft? "There's no question," says Mr. Morrow, "when we consider size, speed, performance, economy and safety. It will be another Aero Commander."

contractual relationships between A. O. Smith International and manufacturing companies in Europe and the Middle East.

The licensing agreements were made with Ruhrstahl A. C., of West Germany, and with Casya, of Argentina, for manufacture of various A. O. Smith oil-field supplies.

•

William G. Ross, Midland, has purchased nine leases, covering 2,755 acres, in the Spraberry Trend, Midland County, from Texas-Alberta Oil Corp.

There are 41 wells on the leases, of which 14 are producing about 715 b/d of oil. The remaining wells are temporarily shut in. Consideration was undisclosed.

•

Wintershall AG, German indedendent, has formed a second Canadian subsidiary, Wintershall Oil of Canada Ltd.

The new company, based in Calgary and headed by J. G. McIntyre, has bought a drilling reservation in Alberta for $250,000. Wintershall's other Canadian subsidiary is Ceepee Oil Co., which is active in Saskatchewan.

•

More than 500 oil-lift and production men from six states are expected to attend the seventh annual West Texas Oil Lifting Short Course at Texas Tech College, April 21-22.

Various phases of oil lifting and production will be covered in 46 papers presented at the meeting.

•

El Paso Natural Gas Co. is connecting natural gas production in Boundary Butte oil and gas field, San Juan County, Utah, to its Greater Aneth gasoline plant.

The connection will permit development of the field, which has been without an outlet for 8 years.

•

Stanton Oil has bought the West Texas interests of Sapphire American Petroleums.

The transaction involves 2,000 acres of proved leases in Cochran County and 11 producing wells. Price was not disclosed.

•

Additional offshore leases may be offered by the state of California in response to nominations by Shell Oil Co.

Shell nominated nine proposed offshore parcels in Santa Barbara County. The nominated lands are in the unleased areas alternating between five parcels leased by the state in 1958, plus one additional parcel to the east (PW—Oct.30'59,p18).

Since the nomination is formal notification of interest, a decision as to whether the lands will be offered is expected from the State Lands Commission.

•

Engineering

Colorado Fuel & Iron Corp. has developed a new wire rope, which is said to be tougher and longer-lasting than its current premium rope.

The new wire rope, Double Gray X, is the result of a new wire-drawing technique developed by the company's Wickwire's research laboratory, Palmer, Mass.

•

Drilling Highlights

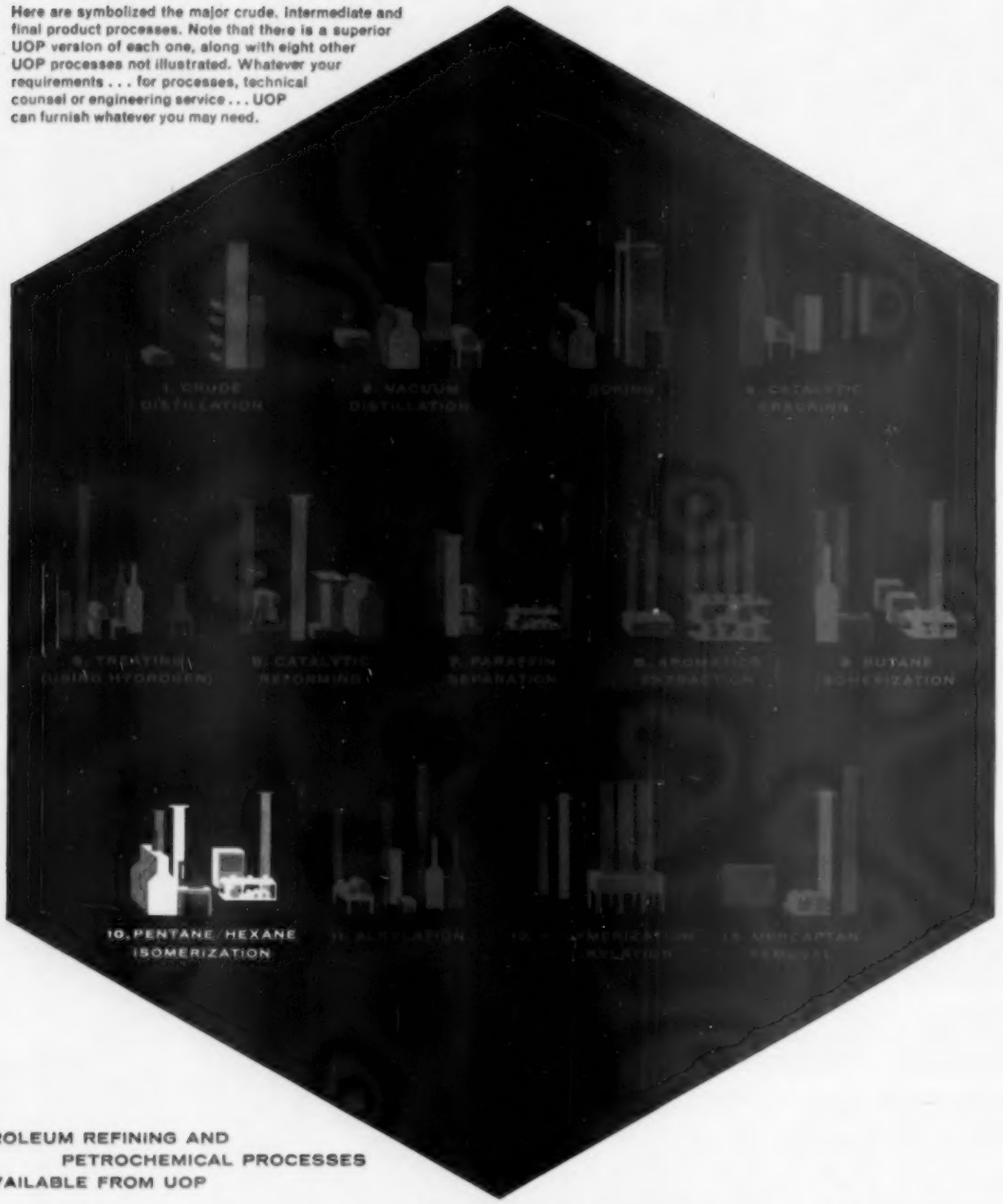
West Texas—Husky Oil Co. and Tennessee Gas & Oil Co. No. 1-A E.M. Dupree, section 41, block M, EL&RR survey, Dawson County, was completed for 428 b/d of 39.8-gravity oil through 9/64-in. choke and perforations at 11,670-735 ft. and 11, 754-78 ft. in the Fusselman (Silurian). The wildcat is 2½ mi. northeast of Britt (Spraberry) field.

Colorado—Thomas L. Nabers and Associates No. 2 Rowley, section 6-36n-18w, Montezuma County, flowed 40 bbl. of oil in 5 hours through 4/64-in. choke and perforations at 5,399-419 ft. in the Ismay (Pennsylvanian). The wildcat is 11 mi. northeast of Flodine Park field.

East Texas—Texas Eastern Transmission Corp. No. 1 Leona Pinkerton, A. M. McKnight survey, Rusk County, was dually completed for open flow of 14-million cf/d of gas plus 47 bbl. of condensate per million through perforations at 7,088-98 ft. in the Upper Pettit, and for 17-million cf/d of gas plus 22 bbl. of condensate per million through perforations at 7,297-306 ft. in the lower Pettit. The discovery (named Shiloh pool) is 3½ mi. east of Minden townsite.

Michigan—McClure Oil Co. and Perry Fulk No. 1 John Winter, section 19-2s-4w, Sheridan township, Calhoun County, flowed an undisclosed amount of 44-gravity oil on drillstem test at 4,232 ft. The wildcat is 3½ mi. northwest of Albion field (PW—Mar.11'60, p18).

Here are symbolized the major crude, intermediate and final product processes. Note that there is a superior UOP version of each one, along with eight other UOP processes not illustrated. Whatever your requirements . . . for processes, technical counsel or engineering service . . . UOP can furnish whatever you may need.



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2. VACUUM DISTILLATION and **VISBREAKING**—easy-to-operate processes for preparation of feed stocks for catalytic cracking.

3. L.P. COKING permits adjustment of gasoline-to-heavy oils production ratio to meet market needs.

4. FLUID CATALYTIC CRACKING—an improved process that gives higher yields, higher octane numbers.

5. UNIFINING™—a modern process that completely purifies petroleum distillates.

6. PLATFORMING® produces high octane gasolines, high purity aromatics.

7. MOLEX™—a new continuous separating process that removes lowest-grade hydrocarbons from gasoline.

8. UDEX®—the ideal process for separation of super-purity aromatics.

9. BUTAMER™—a new and practical process for producing isobutane.

10. PENEX®—a new process that converts light, normal paraffins to isoparaffins.

11. HF ALKYLATION—makes alkylate, top anti-rumble motor fuel. Sulfuric acid process also available.

12. CATALYTIC CONDENSATION—converts olefin fractions of refinery gases into high-quality gasoline and petrochemicals.

13. MEROX™—a new and inexpensive treating process to remove mercaptans from gasolines and light distillates.

PROCESSES NOT ILLUSTRATED:

REXFORMING®—the ideal process to insure your top octane position.

CATALYTIC DEHYDROGENATION—removes hydrogen from hydrocarbons to produce less-saturated hydrocarbons.

HYDEAL™—a new process for the hydrodealkylation of toluene or C_9 aromatics to produce benzene; may also be used for manufacturing phenol and naphthalene.

HYDRAR™—converts benzene to cyclohexane with excellent yields, achieves extreme high purity with Udex grade benzene.

OLEFIN EXTRACTION—efficiently separates olefins and diolefins from paraffins; prepares olefins for further conversion.

AROSORB™—removes heavier aromatics from synthetic and natural distillates, produces aromatic-free heavier distillates.

ALKAR™—produces ethylbenzene, cumene and other alkylated aromatics from Fluid Cat Cracker off-gas streams.

UNISOL®—an economical process for treating high mercaptan-containing gasolines.

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Which of these fuels will you find most profitable to produce . . . motor . . . aviation . . . jet . . . diesel . . . heating? Two years from now you will want to be one of the forward-looking refiners who adjusted his position to take advantage of a greatly changed situation.

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Start now . . . plan for '62.

THE CONSENSUS OF INFORMED OPINION is that 1962 will require a substantial increase in process capacity . . . NOW is the time to start your planning!

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Specifically designed for the continuous catalytic isomerization of normal pentane, normal hexane and mixtures of both, Penex enables the refiner, for the first time, to economically upgrade these low-grade fractions, providing a high-octane blending component of excellent quality. In the Penex process, reaction of the fixed-bed platinum-containing catalyst permits extremely mild operating conditions, while the non-corrosive nature of the catalyst assures easy, economical and long-sustained operation. Conditions are so selected that regeneration is not required, thus reducing capital investment costs, simplifying operation and reducing maintenance.

DEPT/Processing & Petrochemicals

Paving Asphalts Need Better Testing

Present specifications for paving asphalts are obsolete, many refiners feel, because they are not sufficiently related to the actual performance of the asphalts in service.

In past years the American Society for Testing Materials has published at least 30 sets of specifications for asphalts and road oils.

But the science of refining is progressing so fast that conventional specifications are no longer adequate. New processes make available new products that constitute excellent paving asphalts, providing certain of their physical properties are carefully controlled.

The conventional tests used at present to control the quality of paving asphalts measure:

- Softening point, by the "ball and ring" method.
- Penetration, usually at 77F.
- Viscosity Saybolt Furol at 140F.
- Ductility at 77F, to obtain an indication of stretch and elongation.
- Flash point, Cleveland open cup.
- Solubility in carbon tetrachloride.

New tests are being developed, however, which measure meaningful in-service characteristics of asphalts.

These tests, and the reasons for them, were discussed last week at the San Antonio meeting of the Western Petroleum Refiners' Assn. by Vaughn Smith, vice-president of American Bitumuls & Asphalt Co., a Standard Oil Co. of California subsidiary, and by Ellis L. Armstrong, of the Bureau of Public Roads, U.S. Dept. of Commerce.

The desired performance of a paving asphalt can actually be controlled by control of six specific physical and chemical properties.

These properties are:

- Consistency, as measured by viscosity.
- Polar character, or electrochemical properties.
- Rheological character, measuring the colloidal properties of the asphalt.
- Chemical reactivity.
- Volatility.
- Freedom from contamination.

Unfortunately, while certain of these properties can be measured by means of existing simple tests, many call for techniques that have not yet been sufficiently developed.

Present tests for viscosity are unrealistic, says Smith.

The 77F penetration tests, he believes, should be replaced by measurements of kinematic viscosities at three important temperatures: 275F, 140F, and 40F. Highway engineers and road contractors are interested in consistencies at temperatures where pugmill mixing is carried out (250F to 325F), at maximum summertime pavement temperatures (140F to 160F), and in the 30F to 40F region, where brittleness is likely to cause cracking.

But while there are instruments to measure the 275F and 140F kinematic viscosities, a substantial amount of development is still required to produce a simple, satisfactory viscometer for the 40F kinematic viscosity of an asphalt.

Polar character is a novel concept in asphalt specifications. It is responsible for its stickiness and its cohesiveness, and it directly influences its curing rate.

Polar character denotes properties that result from the distribution of electrical charges within the asphalt molecules. When coming in contact with the mineral aggregates of a pavement, asphalt molecules "orient" themselves in a more or less orderly fashion. The process may take several weeks.

To date, there is no testing procedure for polar character that is sufficiently practical to be included in asphalt specifications.

In research laboratories, this property can be measured satisfactorily by the Cohesiograph test, developed by the California Division of Highways. But a much simpler test is needed.

Similarly, the rheological character of an asphalt needs further study. No evidence has been found, for example, to support the long-standing belief that high ductility indicates good resistance to pavement cracking.

Ductility at present is measured by stretch and elongation tests. But, says Smith, a method is needed that can measure the chemical makeup of the asphaltene resins and of the oil components in the asphalt, to determine the process of hardening, and how to minimize the undesirable aspects of it.

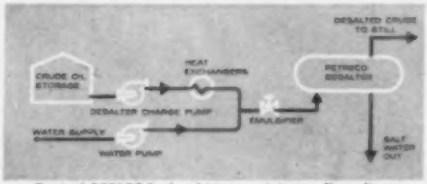
Likewise chemical reactivity tests

Canadian Refinery Ready for Business

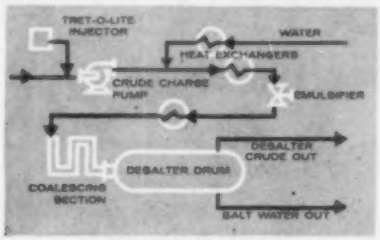
The Ville d'Anjou refinery of BP Refinery Canada Ltd., near Montreal, will be ready to go on stream this month, with an initial throughput capacity of 25,000 b/d. Its principal product will be some 150-million gal. a year of premium and regular motor fuel, which will be marketed in Quebec and Ontario through the 600-odd service stations of the affiliated BP Canada Ltd.

How PETRECO Processes Work...

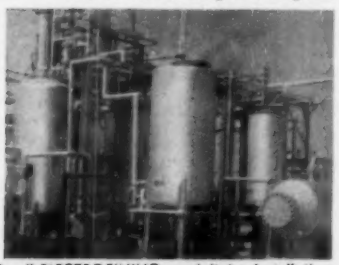
TO IMPROVE PRODUCTS... CUT TREATING COSTS



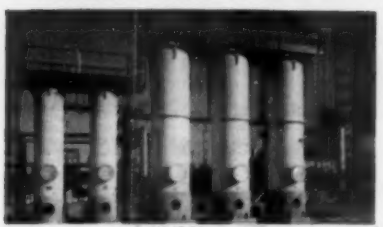
Typical PETRECO desalting precipitator flow diagram.



TRET-O-LITE desalting flow diagram.



Small ELECTROFINING precipitator installation.



BENDER sweetening installation.

** Trademarks, Petrolite Corporation.*

PETRECO *Electric Desalting*

The crude charge is pumped through a heat source with temperatures in the 225-275°F. range, then mixed with a small quantity of water and emulsified. Resulting water-in-oil emulsion is then dispersed into high-potential electrostatic field. Powerful coalescing action forces intimate association of impurities (salts and other solids) with water. Water is then quickly and automatically separated and withdrawn. Purified crude continues into refinery flow.

Tret-O-LitE *Chemical Desalting

Chemical is injected into suction side of charge pump to assure dispersion. Wash water (about 5% of oil volume) is added to oil-chemical mixture following the charge pump. This oil-chemical-water mix is raised to operating temperature and water-to-oil contact attained by passing through emulsifying valve following heat exchangers. Resulting emulsion then goes through coalescing section where water droplets grow to size that permits separation. Mixture then enters desalting vessel, salt-in-water separates from hydrocarbon phase. Purified crude proceeds to usual distillation equipment.

ELECTROFINING *Precipitators

In this treatment, the distillate is intimately and intensively contacted with a predetermined amount of treating chemical. Controlled intimacy of contact minimizes treating time. The hydrocarbon and treating chemical phases then are rapidly separated by the precipitating action of the strong electrostatic field. With ELECTROFINING* Precipitators, distillate stocks can be treated with caustic to remove acids, hydrogen sulfide, lighter mercaptans, gum-forming components. Cracked stocks can be treated to remove cresols and thiocresols. Sulfuric acid treatment removes sulfur compounds, gum and sediment forming materials, nitrogen bases, arsenic, lead, etc.

BENDER Catalytic Sweetening

Controlled quantities of sulfur, alkali and air are added to the charge stream, then passed through a PETRECO* catalyst bed. The mercaptans are converted to disulfides by oxidation. The resulting product is sweet and non-corrosive. The BENDER process is simple, continuous and automatic.

OTHER PETRECO PROCESSES INCLUDE:

PETRECO *Dehydration
PETRECO *Desaponification
PETRECO *Sediment Separation

FOR MORE INFORMATION on any of these treating processes, contact your local Petreco service engineer, or write . . .

AR-60-2

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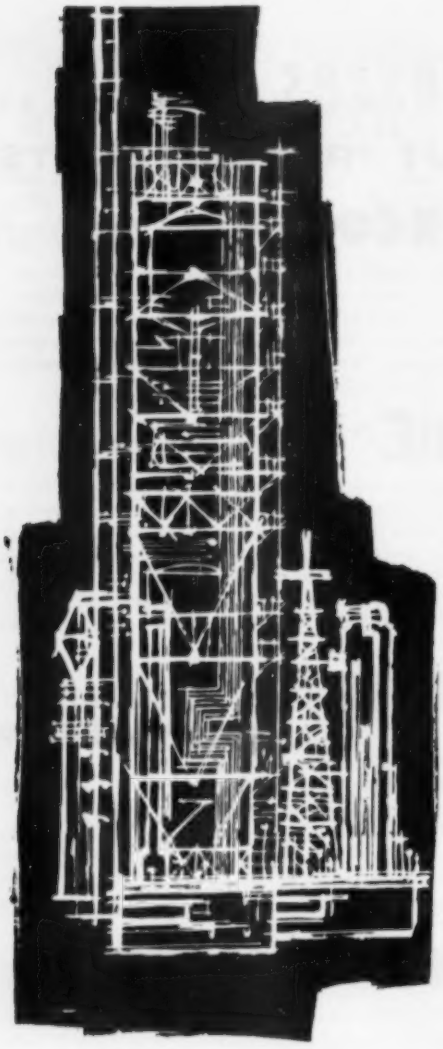

special report: REFINING

MAY 6th PETROLEUM WEEK

The May 6th Petroleum Week Special Report on Refining will concentrate on the independent refiner – his problems, opportunities and future. It will bring Petroleum Week readers up-to-date on what has happened since the last report on this subject (two years ago) and what conditions the independent refiner faces now.

From a survey conducted among 125 independent refiners, this Special Report will detail what independent refiners propose to do about markets, operating costs, expansion of facilities, purchase of new equipment, participation in the industry's technological advancement, possibilities in specialization, funds to work with, and remaining independent.

Closing date April 15th
for advertising space reservations

A thousand extra copies of this issue will be distributed at the American Petroleum Institute Refining Division mid-year meeting in Detroit, May 9-12

The Special Report on Refining in the May 6th Petroleum Week will provoke interest in, and produce action for advertisements in that issue featuring products and services with application in oil refining, independent or otherwise.

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And it also acts as a backstop for our regularly scheduled TEL delivery program—minimizing the danger of a shutdown due to a delivery delay caused by unforeseen circumstances.

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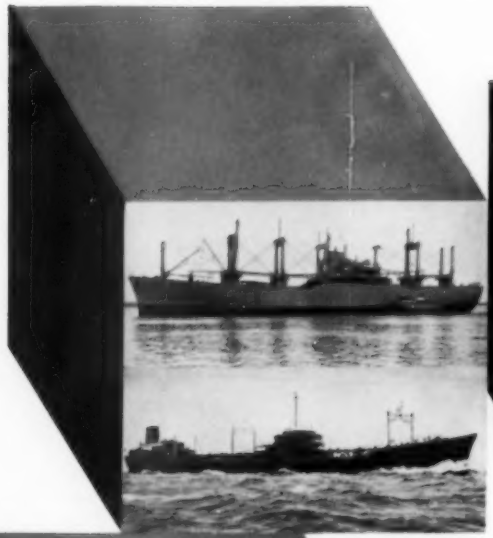

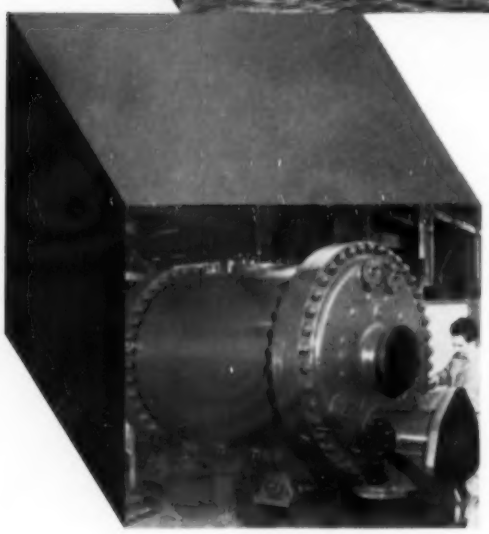

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of asphalt should be more realistic; they should approximate more closely actual pavement conditions.

There is a tendency to replace the conventional "loss on heating" test performed on bulk asphalt at 325F by a "thin film oven oxidation test." And Shell Oil Co. has developed an "aging index test" using a thin film heated to 225F. But Smith goes one step further, and recommends an "embrittlement rate" test on thin films (less than 10 microns), and at moderate temperature (not over 180F), to rule out products that harden rapidly under such conditions.

There is no reason to replace the relatively simple flash point tests for studying volatility. But there is a good reason to favor the closed cup test in preference to the open cup test.

Exceedingly small quantities of surface-active materials, Smith pointed out, such as silicone compounds, can ruin the qualities of a paving asphalt. These are better detected by the Pensky-Martens closed cup test than by the unstirred Cleveland open cup flash test.

Present tests for the detection of contamination in asphalts are considered satisfactory.

Plain Water, Worst Corrosion Offender

Of all the corrosive media that a fully-integrated synthetic rubber plant must handle, oddly enough, the most corrosive is the plain river water used for cooling purposes.

This paradoxical condition was reported at the recent annual conference of the National Assn. of Corrosion Engineers, in Dallas, by N. Monsour, of the engineering and construction department of Polymer Corp., Ltd., of Sarnia, Ont.

Monsour reviewed the complex corrosion problems experienced in his plant. The company receives light hydrocarbons from several nearby refineries and transforms them into butyl and styrene-butadiene rubbers, and latex.

The plant of Polymer Corp., Ltd., at Sarnia, Ont., handles a great variety of corrosive media.

Among the most common are:

- 1.8-million lb. per hour of steam, needed for electric generation and for processing;
- Nearly 5.5-million gal. an hour of cooling water;
- Sulfuric and hydrochloric acids, at all concentrations, at temperatures up to 250F and 450F, respectively;
- Brine solutions, for cooling;
- Soap solutions;
- Caustic soda, in a closed system, for preliminary treatment of the incoming hydrocarbons;
- Ammonia, as refrigerant;
- Boiler feedwater treatment compounds.

Inspection of the equipment is conducted on a regular schedule, according to the severity of the corrosive material handled.

Test holes are drilled for checking the remaining wall thickness of a vessel or a piping.

Every 24 hours, 130-million gallons of water are used in a once-through cooling system, and corrosion from this water is abnormally high.

The corrosion takes the form of tuberculation, with pitting underneath the tubercles. It is also suspected that bacteria growth contributes to the abnormal corrosion, the Sarnia engineer observed.

Admiralty-metal tubes have been successful where copper alloys can be used. But when carbon-steel baffles and tube supports are used in connection with Admiralty tubes, galvanic corrosion occurs. Brass is now being used in place of carbon steel.

Low-pressure steam and hot condensate was found to cause abnormal, costly shut-downs of units. But superheated steam, at 50 psi. and 1,475F, raised no corrosion problem.

The attack on heat exchangers is a typical erosion-corrosion effect. Copper alloys cannot be used in most locations, because hydrocarbons that contain acetylene would form an explosive acetylide compound. But certain other alloys, and wrought-iron tubes, are under consideration, Monsour said.

Some cases of unusual corrosion can be cured by changes of unit design, and by a judicious choice of construction material, Polymer Corp. found.

For example, for the handling of sulfuric acid, a life of 16 years or more can be anticipated for carbon-steel equipment, properly lined with lead or phenolic epoxy resins. But Admiralty-metal tubes did not last over two years; these have been replaced with monel tubes, which have proved many times more serviceable, Monsour pointed out.

Weldings, he explained, were the weak spots of equipment in contact with hydrochloric acid; welds have had to be repaired at every shutdown —generally once a year.

The cooling system of certain reactors, using a calcium chloride brine solution, had to be changed from outside jacketing to inside cooling coils of carbon steel, because of pitting.

Expansion joints, such as used in the butylene dehydration units, develop special corrosion stresses.

Stainless steel had to be replaced with monel metal due to stress corrosion cracking in these joints.

Unexpected external corrosion of carbon-steel pressure vessels was discovered when the insulation around the vessels was removed.

Moisture-saturated insulation had caused it, Monsour said. The metal showed as much as ¼ in. of corrosion. The vessel had been in service 15 years.

For Pure Propylene

This $2-million plant has just gone on stream at Sun Oil Co.'s Marcus Hook (Pa.) refinery to produce 120-million lb. a year of 99.9% pure propylene. Raw feed comes from refinery gas streams. Product of the unit is currently being delivered to the nearby petrochemical plant of AviSun Corp., joint subsidiary of Sun and American Viscose Corp., for the manufacture of polypropylene. Each distillation tower is 145 ft. high and 10 ft. in diameter, and weighs 200 tons.

Process Makes Refining More Flexible

Universal Oil Products Co. has developed a flexible process, called Lomax, for catalytic cracking in the presence of hydrogen to increase gasoline yields.

The process was described at last week's meeting of the Western Petroleum Refiners Assn. in San Antonio, by M. J. Sterba and C. H. Watkins, of UOP. It is designed to upgrade middle distillates, ranging from kerosine to heavy vacuum gas oils, to lower-boiling products, primarily gasoline.

A hypothetical 50,000 b/d refinery was used for the demonstration. It had the following conventional units:

- A crude still with vacuum distillation section.
- A catalytic reformer and hydrogenation unit, processing 13,600 b/d of naphthas.
- A fluid cat cracker processing 16,400 b/d of vacuum gas oils.
- A gas concentration unit followed by both an alkylation and a polymerization plant.

Without any Lomax installation the yields of such a refinery would be:

- 22,315 b/d of gasoline of about 100-octane (fully leaded) and 8 Reid vapor pressure, or 46.6% of the crude volume processed.
- 16,890 b/d of middle distillates, or 33.8% of the crude volume.
- 7,270 b/d of fuel oil of 300 Furol viscosity at 122F, or 14.5% of crude volume.
- 29,395 lb. of fuel gas per hour, corresponding to a heating value of 17.6 x 10^9 Btu. per day.

A Lomax unit can be inserted at any of several places in an existing refinery to change its yields substantially, according to UOP.

Two extreme cases could be reached based on the hypothetical refinery setup. One would yield a maximum of 33,480 b/d of gasoline of better than 100-octane—67% of the crude volume. On the other hand, a maximum production of 22,310 b/d of distillate, or 44.6% of the crude volume, could be produced. Between these two extremes, there are many intermediate cases.

A Lomax unit could be inserted to treat light-cycle gas oils from the fluid catcracker—some 3,590 b/d.

An additional cat reformer would then be needed to treat the heavy Lomax naphthas, while the light naphthas (nearly 700 b/d) would be routed to the gasoline pool directly.

All the hydrogen required for the Lomax unit would be available from the cat reformers. This setup would increase the yield of gasoline by 4,037 b/d, bringing its volume to 54.7% of the crude volume.

The entire Lomax production could be added to the gasoline pool without additional reforming. But then the octane number would drop to 98.8.

Another good use for a Lomax unit would be in treating substantial amounts of virgin distillates from the vacuum still.

For example, UOP considers that 9,800 b/d of the 13,300 b/d of these distillates can be Lomax-processed. Here also additional cat reforming capacity is required. The gasoline yield in this case would be raised to a maximum of 67% of the crude volume.

UOP points out that a similar treatment of the virgin gas oils, if accomplished by a fluid cat cracker instead of a Lomax, would yield only 1,700 b/d of additional gasoline of the same quality. And the pool of middle distillates would be of inferior quality, because of the cracked distillates it would contain.

Still another use would be to replace with a large size Lomax unit the initial cat cracker, the gas concentration unit, and the alkylation and polymerization plants.

Then additional cat reforming capacity would be needed to accommodate about 5,590 b/d of Lomax-produced naphthas. And additional hydrogen would be required for the Lomax unit.

In this case the gasoline pool would be increased to 32,050 b/d or 64.1% of crude volume, the 10,680 b/d of distillate would be of excellent quality, and there would be an excess of 900 b/d of isobutane available, even if the Reid vapor pressure of the gasoline were increased to 10 psi.

What's New / IN PROCESSING

Shell Chemical Co., Ltd., and Shell Nederland N.V. are set to manufacture two new types of synthetic rubber, polyisoprene and polybutadiene.

Up to the present time, polyisoprene has been produced commercially only in the United States, and polybutadiene is not commercial anywhere.

A British plant for the production of the two synthetics will be built at Carrington, near Manchester, and will be completed in two or three years. Operations in the Netherlands will begin as soon as substantial capacity can be arranged.

•

Production of polystyrene plastic at Koppers Co.'s Kobuta (Pa.) facilities will increase about 15% later this year when plant modifications are completed.

The Kobuta project is part of a general expansion of Koppers facilities for polystyrene plastic and styrene monomer production. A short time ago, Koppers and Sinclair Oil Corp. announced plans for a new facility in Houston for the production of styrene monomer.

•

A new, more compact version of fluid coking unit has been developed by Esso Research & Engineering Co.

Its initial cost is lower, Esso says, and the cost of utilities to operate it can be cut as much as 35%.

Main saving derives from the use of a waste-gas turbine to drive the air blower.

•

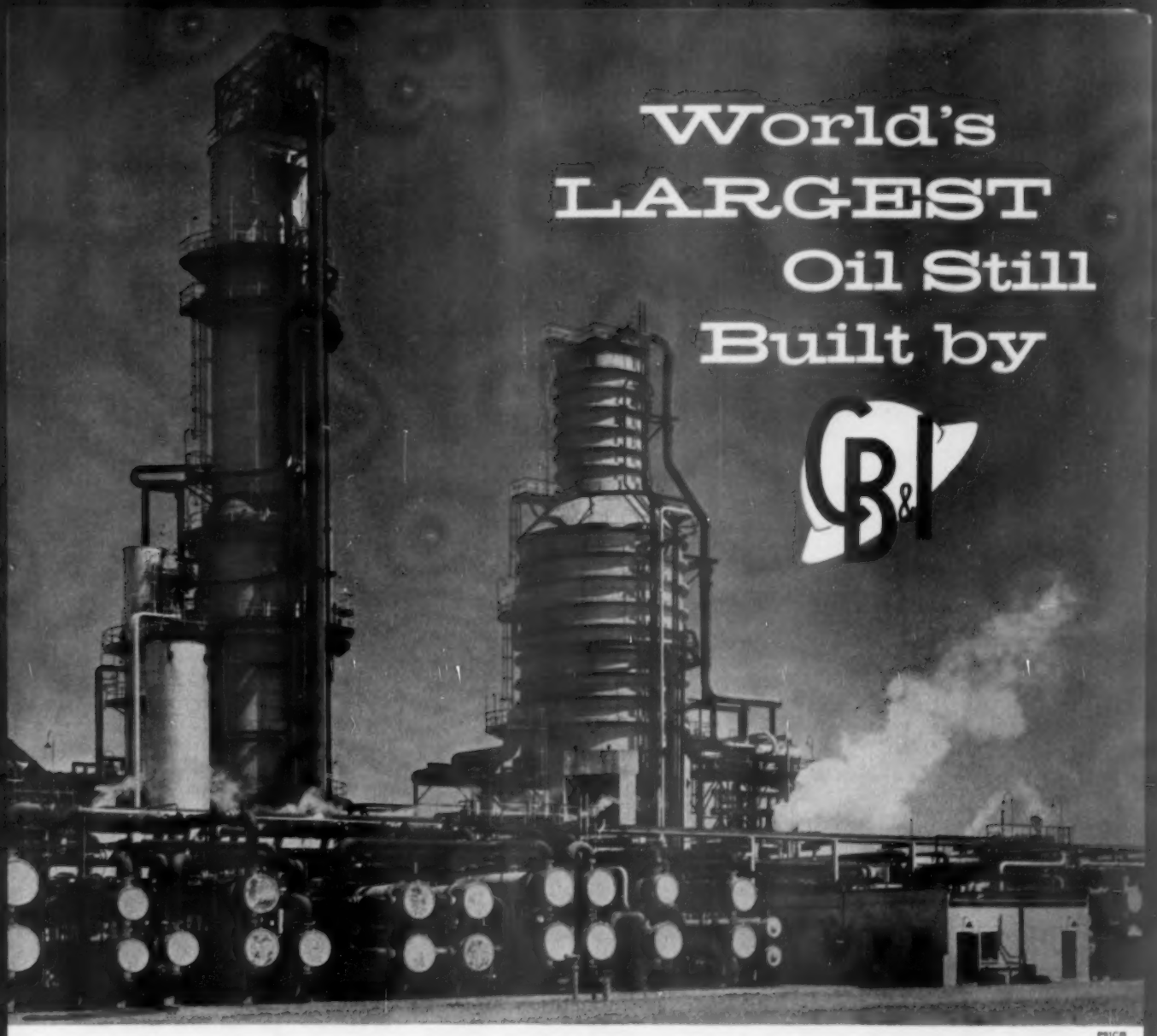
Continental Carbon Co. plans to build a $2.5-million plant near Bakersfield, Calif., to produce 30-million lb. per year of four different types of carbon blacks.

Continental Carbon is a joint subsidiary of Continental Oil Co., Shamrock Oil & Gas Corp., and Witco Chemical Co., Inc.

•

Three plants, for the manufacture of butadiene, methanol, and ethylene dichloride, will be built at Grangemouth, Scotland, by British Hydrocarbon Chemicals, Ltd., jointly owned subsidiary of British Petroleum Co., Ltd., and Distillers Co., Ltd.

The new plants are scheduled to go into operation in 1961; total investment in new facilities is estimated at $14 million.



P91CB

The world's largest crude oil pipe still . . . which has a capacity of 140,000 barrels a day . . . utilizes a 173-foot high primary fractionator tower and 145-foot high vacuum fractionator tower, both built by Chicago Bridge & Iron Company. The new processing unit recently went on-stream at a major midwestern refinery to replace nine smaller, obsolete stills. The towers, both completely radiographed and stress relieved, were furnished through Arthur G. McKee Company.

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DEPT/International

Oil Firms Trim Venezuela Payrolls . . .

(A report from PETROLEUM WEEK'S *Caracas Bureau)*

CARACAS—Oil companies in Venezuela have started trimming their payrolls in their latest effort to hold down operating costs.

The cutback in personnel will probably be a gradual one, spaced out over the rest of the year.

The government, while recognizing the necessity of reducing personnel, is urging companies to stretch out layoffs in order to minimize political repercussions.

The belt-tightening follows the signing of new industrywide labor contracts in February (PW—Feb.26 '60,p55).

These provide for pay raises of 10% to 12%, a shortened work week, and added fringe benefits.

Altogether, most companies estimate, the package will add from 15% to 17% to labor costs of the previous three-year contract, which expired late last year.

The hike in labor costs is only the latest in an accumulation of adverse factors that have forced oil companies to take a new look at their operating and capital spending budgets (PW—Apr.1'60,p30).

Other principal factors are higher taxes, surplus producing capacity, and intensifying world market competition.

A sharp reduction in exploration will account for a big share of the layoffs—affecting contractors more severely than operating companies.

But the companies are also looking for ways to trim their producing operations and to cut personnel wherever possible. For example, one operator in Lake Maracaibo reportedly has simply dropped a shift every seventh day.

High-cost operations in eastern Venezuela will be hardest hit. One company reportedly plans to shut down entirely there.

For some companies in eastern Venezuela, the added cost of the new labor contract is estimated as high as 10¢ to 12¢ a bbl., compared with an average 3¢ to 4¢ in Lake Maracaibo. The average added cost for the whole industry is figured at 6¢ to 7¢ a bbl.

The "newcomers" in Lake Maracaibo are not directly affected by the labor cost hike as much as the long-established companies there, since they make greater use of contractors. But their contracting costs will rise proportionately, since contractors must pay wages equivalent to those of operating companies.

Layoffs to date are still small compared with the total industry payroll of 43,000.

A report by the Labor and Oil Ministries says layoffs by operators and contractors total 644 since signing of the new labor contract. This includes 374 in the west, and 270 in the east. In the same period, 73 have been hired in the west. Thus, the net cutback is 571 so far.

Biggest layoffs in the Lake Maracaibo area, according to this tally, include 121 by Loffland Brothers (drilling contractor), 61 by Superior Oil, and 45 by J. Ray MacDermott (drilling contractor).

In Barinas, Mobil Oil laid off 44 after halting all drilling there.

In the east, the report says, Atlantic, Sinclair, and Mobil account for most of the layoffs.

There's no forecast yet of how big the payroll cut will be by year's end.

Some companies had already trimmed the "fat" from their payrolls before the five-month job freeze that went into effect last October for the duration of labor contract talks. Other companies had to hold onto employees even though they reduced their operations during that period.

Companies also are still making the changeover to the shorter work week —44 hours for field workers and 40 hours for office employees—which in itself will require additional workers to fill out the shifts.

But even though the layoffs have just begun, they are already creating union and political problems.

The Oilworkers Federation has threatened a strike against one operating company over the issue of layoffs —but hasn't acted on the threat. Also, an engineering and construction firm that is completing a major refinery project is facing union protests over layoffs.

. . . and Budgets May Be Pared Too

CARACAS—Oil companies' 1960 budgets for capital outlays in Venezuela may be pared further before the year is out, industry observers here believe.

At present—despite the anticipated sharp drop in outlays for exploration —over-all capital spending budgets for this year look only moderately lower than in 1959.

The reason: Some important long-term expansion programs are still in progress. For example, Creole Petroleum and Shell of Venezuela are taking deliveries of two supertankers apiece this year, and each is building a big gas injection plant in Lake Maracaibo. Also, Mobil Oil is completing its El Palito refinery, and Shell is continuing work on its Puerto Miranda loading terminal.

One phase that might show an increase in outlays, however, is the costly program of home-ownership being carried out by principal operators in the Maracaibo area.

These actually might get a boost under the new labor contract, since its bigger cash housing allowances for workers provide a greater incentive for the companies to move employees into their own homes. But the bigger cash payments, on the other hand, may also make employees more reluctant to accept the programs.

The oil companies have small hope that the government will be able to offer them new tax allowances big enough, in themselves, to stimulate much new capital investment.

To stimulate capital spending, Minister of Mines & Hydrocarbons Dr. Juan Perez Alfonzo announced recently that the government is studying the possibility of granting further income tax allowances on reinvested profits (PW—Mar.11'60,p36)—a proposal that was also under consideration a year ago.

The present top-bracket tax reduction from 45% to 41% for reinvested earnings is of little practical benefit to the oil companies, since it doesn't apply to depreciation reserves.

But though the companies don't think the government's fiscal position would permit it to offer sufficiently large tax allowances, they feel that higher allowances could have an important effect in helping to restore confidence in a more favorable over-all operating climate.

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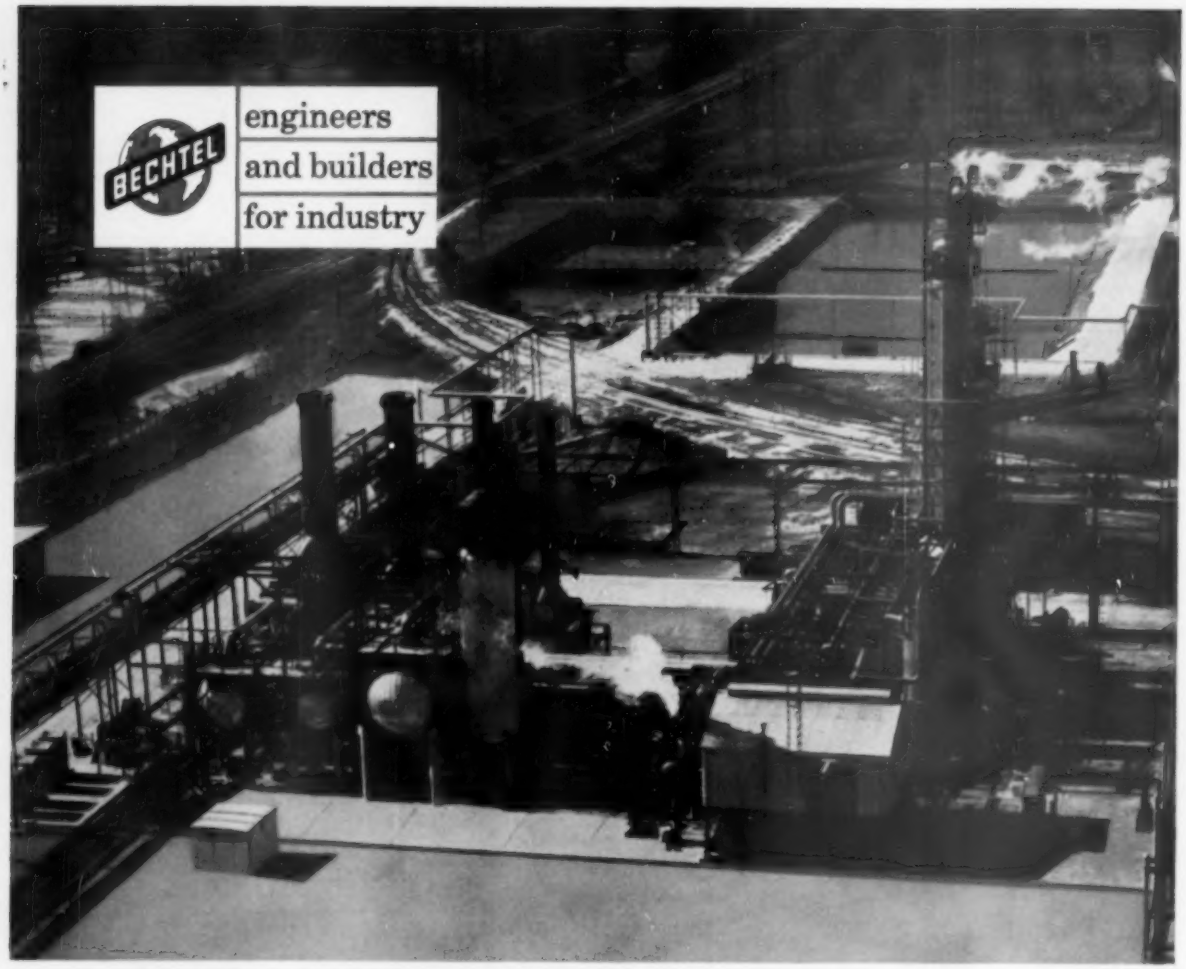

Bechtel Completes One Job, Starts Two More in

CONTINENTAL'S WESTLAKE REFINERY

Last December Bechtel completed a new Catalytic Desulfurizer and the Refinery's second Catalytic Reformer for Continental Oil Company at Lake Charles, Louisiana. The new facilities were constructed in less than 5 months. Work starts this spring on a new light ends Depropanizer Unit and an additional petrochemicals stream fractionator. These two units are scheduled for completion by mid-summer. The Depropanizer will process all light ends from the Refinery's crude topping units plus a large volume of raw product pipelined to the Refinery from nearby gasoline plants.

In an area where difficulties have been experienced in the past, good jobsite management finished the project on schedule and kept costs under close control – including direct labor costs. This story should interest oil company executives responsible for engineering and construction.

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Japanese Break into Refining Abroad

TOKYO—A long-time Japanese aim to move into southwest Asian oil markets materialized last week with a deal for the first foreign-based Japanese refinery.

The plant, a 20,000 b/d unit initially, will be built in Singapore, marking the first entry of an independent in that market.

It will be a joint venture of Maruzen Oil, independent Japanese refiner, and Toyo Menka Kaisha Ltd., a Mitsui trading company specializing in machinery, which has substantial operations in Singapore.

The Japanese refinery will be one of the first two in Singapore, where Royal Dutch Shell's refinery bid was also accepted last week (PW—Dec. 11'59,p54). Both plants will be granted five-year tax exemptions.

The $7-million Japanese plant is scheduled to go into operation in November, 1961. The Singapore government will lease land for it to the Japanese for 30 years.

Shell's plant also will be a 20,000 b/d unit, costing $12.8-million.

Maruzen Oil pushed through its deal despite opposition of its principal financial backer in Japan and of Union Oil Co. of California, its partner in a southeast Asian distributing company setup in Hongkong recently.

Both Union Oil and Sanwa Bank, Maruzen's main backer, are known to feel that the Singapore market is too small, and that the political situation there is too unstable for present investment.

But the company has the blessing of both the Tokyo and Singapore governments for the project.

Tokyo hopes to boost Japanese exports to Singapore. And Singapore favors the deal as part of the governing left-wing party's program to reduce the predominance of British companies in the former British colony under the new independence constitution it was granted last year.

Further, Maruzen's partnership in the venture with Toyo Menka assures financial backing of Japanese banks and perhaps of the government's export-import bank.

Crude for both plants will come in tax-free, unlike Singapore's present product imports, which come mainly from the Indonesian refineries of Shell and Standard-Vacuum, and carry import duties.

Maruzen expects most of its products to go to semigovernment utility organizations and for bunkering, thus avoiding the most direct competition with Shell, which dominates the gasoline market.

Products from the Japanese refinery may eventually be exported to Malaya and to Unimar, the joint Maruzen-Union Oil marketing company in Hongkong.

Maruzen also hopes its refinery project may mesh with Japanese plans to help develop Indonesian crude in North Sumatra at Pangalang Susu—the pre-World War II Shell properties now operated by Permina, an Indonesian government company.

Maruzen has been buying the entire output of the field since mid-1957. Its imports have run at about 6,000 b/d of crude, which is said to be 60% naphtha.

Actually, however, Maruzen expects to get most of its crude supply for the plant from the Persian Gulf—specifically Wafra crude from the Neutral Zone.

Maruzen has already contracted for Wafra crude thrugh Mitsubishi Shoji, a trading company that represents American Independent Oil Co., Tokyo.

A Maruzen spokesman says there is also a possibility of importing Indonesian crude from Caltex's Duri field in Sumatra but admits this may not prove feasible since Caltex itself markets in Singapore.

All Just Propaganda, Tariki Says

Saudi Arabia's oil director, Abdullah Tariki, discounts as propaganda the contention that North Africa's oil discoveries will be highly competitive with Middle East oil.

This official point of view was outlined by Tariki, director general of Saudi Arabia's Petroleum & Mineral Affairs, in an article published recently in a Riyadh newspaper.

Saudi Arabia, Tariki says, would not be the country to fear competition—if there is a prospect of such competition. These are his reasons:

- All the oil reserves discovered in North Africa to date amount to less than half the reserves of a single field in Saudi Arabia—the Abqaiq field (which is far from the largest oil field in Saudi Arabia—its proved reserves are listed at less than 5-billion bbl.).
- Oil reserves discovered in Saudi Arabia so far amount to no more than 10% of what may yet be discovered.
- Saudi Arabia already has the largest proved recoverable oil reserves of any country in the world.

Everything being said about the competitiveness of North African oil, Tariki asserts, is only part of an "old game" that oil companies resort to when host governments are trying to amend their concession agreements.

As an example, he points to Arabian American Oil Co.'s references in an annual report ten years ago to discoveries in such countries as Canada, and to expansion of output in Kuwait. The purpose of these references, he says, was to discourage Saudi Arabia's efforts at the time to obtain a half-share of profits, as it ultimately did.

However, neither the revision of the Saudi government's share of Aramco's profits nor the increase of production in Kuwait and Canada interfered with Aramco's expansion of oil production or the discovery of new reserves in new Saudi Arabian fields, Tariki adds. The only factor that affected expansion, he says, is the rate of growth in world demand.

The world is not threatened by expansion of oil production in any part of the globe, Tariki adds. The great danger, he contends, is that oil will not be available in sufficiently large quantities to meet the continuous increase in world demand.

Mobil Speeding Libyan Exploration

Mobil Oil is speeding up its exploration activities in Libya this year with 12 new wildcats and 8 development wells planned.

As part of the program, Mobil spudded its A-2-11 stepout on Mar. 22. The new well is about 1 mi. northeast of Mobil's A-1-11 gas well, El Hofra.

In Block 13, which adjoins Esso's Zelten area, Mobil's Masdar wildcat, at 8,270 ft. at last report, is being drilled ahead. There have been no shows so far. Masdar is 12 mi. northwest of Esso's Zelten discovery well.

The Masdar test has been drilled past the zone that is productive in four of the five Zelten producers, and is now in the zone that is productive at No. 3 Zelten.

Venezuela to Release Rigs for Export

(From PETROLEUM WEEK'S *Caracas Bureau)*

CARACAS—Venezuela has decided to grant permits for re-export of some of the many drilling rigs idled by the continuing cutback in drilling operations (page 74).

Minister of Mines & Hydrocarbons Dr. Juan Perez Alfonzo announced last week that the government is making a survey to determine just how much drilling equipment is actually needed in Venezuela.

On the basis of the government's survey, re-export permits will be granted for all rigs considered surplus, the oil minister said.

He pointed out that the idle drilling equipment represents a tax loss for the Venezuelan treasury.

There are some 90 rigs stacked in Venezuela at present, with little prospect of work being found for them in the foreseeable future.

At an estimated average current valuation of $250,000, the rigs represent an investment of over $20-million, which is yielding no return to owners of the equipment.

Drilling contractors, hardest hit by the drilling cutback, say their profits on the few rigs they are able to keep running are eaten up by depreciation on idle equipment.

The two biggest contractors in Venezuela—with nearly 50 rigs between them—are hard put to keep a dozen active.

Over-all, there are only 48 rigs running in Venezuela now. There were 156 at the peak of drilling activity in late 1957.

Many of the older rigs have already been depreciated. Drilling companies are most worried about costly new equipment—including big diesel-electric rigs and barge tenders—which was brought into Venezuela during the 1957 boom. Some of these units have worked only a few months since then.

Depreciation of the idle rigs is also costing the government money because the export of a rig is treated as if it were a sale resulting in a taxable gain. The longer the rigs are allowed to depreciate, the less the government's eventual tax revenue, since the tax is based on the stated value of the rig at the time of export.

The pattern of rig exports will probably involve the negotiation of an appraised value for tax purposes.

For example: In one recent case, a company set an arbitrary value of $35,000 on a rig which was brought to Venezuela in 1949 and which had been completely depreciated since then. The government, however, argued that the rig had been depreciated too fast. The company had to accept an appraisal value of $81,000 before it could get an export permit.

Only about ten re-export permits have been granted to date, despite the steady decline in drilling activity.

Venezuela has a long-standing policy of discouraging re-exports of capital equipment.

Some drilling companies have now withdrawn from Venezuela entirely: Reading & Bates, of Tulsa, took its sole rig out of Venezuela last year, while Servicios Tecnicos Orientales shipped two rigs to Colombia and moved its administrative office to Bogota.

International Brown Drilling Corp. recently obtained permission to export most of its equipment, consisting mainly of three big rigs in the Maracaibo area. An offshore drilling firm also got a permit to take out one of its two barge tenders, and another contractor reportedly has been granted a license to ship a rig to Libya.

In addition, a major operating company—which reportedly has 16 rigs up for sale—is sending two rigs to Argentina.

Latin Americans Start Oil Talks

MEXICO CITY—Close marketing coordination and cooperation among Latin America's government oil companies will be discussed in potentially significant talks starting this week.

The first official representatives of Latin American oil producing countries started arriving last week for the sessions with Pascual Gutierrez Roldan, president of Mexico's Pemex, on "more cooperation" in a "friendly bloc" of government oil companies.

Among them is Dr. Eduardo Acosta Hermoso, Director of Hydrocarbons in the Ministry of Mines & Hydrocarbons of Venezuela (which is about to set up a government oil company). Dr. Acosta is a last-minute replacement for Venezuelan Oil Minister Dr. Juan Perez Alfonzo, who was originally expected to attend personally.

The president of Pemex has gone out of his way to reassure representatives of private oil companies here that the talks are in no way aimed at "coercive action" against them.

Gutierrez Roldan has previously said, in referring to these meetings, that "Mexico's 22 years of a nationalized oil industry hasn't done too badly, but I should not necessarily recommend setting this pattern for other countries."

One of the main items on the agenda: petrochemicals, and possibilities of closer cooperation in production of them. Mexico, for example, will propose supplying much of Latin America with carbon black (to be produced here soon)—an item Venezuela would find uneconomical to produce.

Other topics to be discussed: a permanent interchange of technical, marketing, producing, and administrative information; and a limited exchange of technicians.

Plan Jells to Export Sahara Gas

PARIS—French plans to bring natural gas from the Sahara to Europe in the form of liquid methane will take shape soon.

A new internationally owned company will build a plant to liquefy gas from the big Hassi R'Mel gas field. It is due for completion in 1963-64 on Algeria's Mediterranean coast near Oran. Initial output will be 29.5-million cu. ft. of liquid methane annually, to be doubled at a second stage.

Conch International will have a 50% interest in Camel, the company that will build the gas liquification plant and sell the liquid methane to customers with their own means of transport.

At present, Conch is the only company with a tanker that can transport liquid methane. It is owned 40% each by Shell and Continental Oil, and 20% by Union Stockyards, Chicago.

French oil companies, banks, and government organizations will own the other half of Camel (Cie. Algerienne du Methane Liquide).

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Once the people of his village had only the barest necessities of life—whatever products they could make themselves. Lack of transportation prevented trade and the progress that comes with trade.

Then great bulldozers, scrapers and cranes went to work. Soon a broad new road pierced the jungle. Now trade flourishes. From farms and factories miles away, trucks bring food, machinery, building materials, clothing—the many good things of modern life.

The power for equipment that builds roads, and for the vehicles that travel them, comes from oil. Assuring a steady flow of oil is a prime concern of Standard-Vacuum. In Asia, Africa and the lands of the Pacific, Stanvac continually searches and drills for oil, then refines and markets many finished petroleum products. Stanvac is proud of its role in helping the peoples of these areas in their forward march.

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POWERS PROGRESS

What's New / AROUND THE WORLD

New Guatemala Test Set by Ohio Oil Group

GUATEMALA—The Ohio Oil Co. group this week announced it will shift to a new wildcat site 17 mi. northwest of its No. 1 Chinaja, which finally had to be abandoned short of target depth.

Continental and Amerada will participate in the new test. Union Oil of California, which also shared in the Chinaja wildcat, holds no stake in the new location.

No. 1 Chinaja had originally reached 10,806 ft., encountering noncommercial oil shows before it was sidetracked and carried to 10,607 ft. High pressure, corrosive sulfur-water flow, and lost circulation broke the drill pipe three times in eight months. Finally, it was economically unfeasible to recover 38 joints of pipe that dropped 2,400 ft. to the bottom of the hole.

•

ITALY—Cities Service is making its first re-entry into European marketing in many years through acquisition of a ⅓ new-stock interest in an independent Italian marketer—ABC-Petrolifera Italiana SPA—by Cities Service's Peruvian Pacific Petroleum Co. The move will help finance expansion of ABC in Italy and Sicily.

•

INDIA—The New Delhi government is expected to boost the allocation for its own oil exploration program to $241.5-million for 1961-66, in its third Five Year Plan.

This is four times the sum made available during the second plan but will probably be used by the Oil & Natural Gas Commission in only two areas—Cambay, in Bombay state, and Sigsagar, in Assam.

•

PERU—Peru's newest offshore producer has been completed for 200 b/d by Belco Petroleum Corp., of New York, as an extension of onshore fields of International Petroleum.

The Litoral 3-1 was slant-drilled from the mainland near Talara to 5,300 ft. and completed at about 3,800 ft. Litoral 4-1 is now being drilled on an adjoining offshore tract. Belco, which acquired its Peruvian properties a year ago, also has 11 wells onshore, now producing a total of about 500 b/d.

•

FRANCE—Oil Center Tool Co., Houston, has acquired a "substantial" interest in a French manufacturer of oil equipment. The firm, Luceat, S.A., Sens, will manufacture O-C-T wellhead equipment, and also equipment of Chiksan Co., Brea, Calif., and Well Equipment Manufacturing Co., Houston, for France and other Common Market countries.

•

JAPAN—Dollar allocations for imports of crude are set at $157.3-million for the six months starting in April, with another $25.2-million for fuel oil. Actual crude imports for the same six months of last year came to $184.3-million, including supplementary allocations made because the government had underestimated demand.

•

SYRIA—Deutsche Erdoel last week announced signing of a new agreement with Cairo on principles for developing the Souedie discovery made in northeast Syria by Concordia, the German company's subsidiary. Concordia itself, it said, has the option to set up a joint company with the United Arab Republic.

•

COLOMBIA—A $13-million plant will be built by International Petroleum (Colombia) near its Cartagena refinery to produce 300 tons of ammonia and 150 tons of nitric acid daily for fertilizer manufacture in Colombia and the Caribbean area.

•

JAPAN—Two 47,000-ton tankers have been ordered to transport Neutral Zone offshore crude for the Japanese-owned Arabian Oil Co. They're to be completed in March and June of 1962 for Japan Petroleum Trading Co., a participant in Arabian Oil. It is also reported buying older tankers for storage of the crude, newly discovered on the Persian Gulf concession.

•

ALGERIA—Nine new Sahara oil permits totaling 15,682 sq. mi. were awarded last week to seven French companies. Almost ⅗ of the acreage went to Creps, owned 35% by Shell, and to Soc. des Petroles de Valence, owned 50% by British Peroleum.

•

AUSTRALIA—A $25-million to $29-million lube oil plant will be built jointly by Caltex and two of its offtakers—Ampol Petroleum Ltd., and H. C. Sleigh Ltd. The unit will be set up at Caltex's Kurnell refinery located near Sydney.

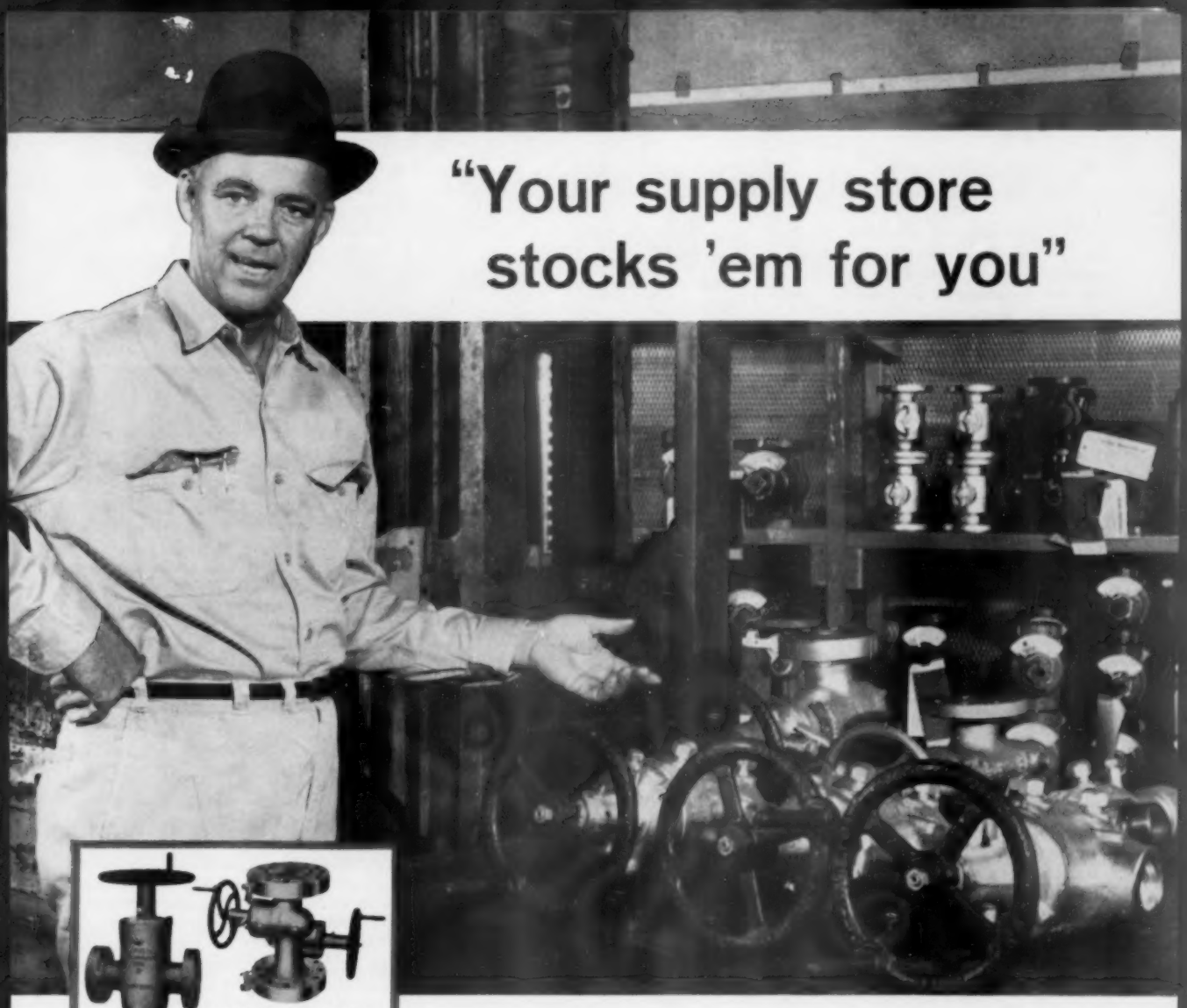
•

Wildcats in the News

LIBYA—Preliminary tests between 5,350-750 ft. on Oasis Oil's B-1-59 wildcat indicate production in excess of 1,500 b/d of 33-gravity oil. B-1-59, which was drilled to a total depth of 6,263 ft., is about 65 mi. south of Esso's No. 1 Zelten, biggest find in Libya to date. Oasis, operator for the Conorada Group (Continental, Ohio Oil, and Amerada), is now drilling a stepout approximately 4 mi. southeast of the discovery.

VENEZUELA—The Paria Operations group has had encouraging shows in a current offshore wildcat in the Gulf of Paria. This may indicate either a new reservoir or an extension of its sole discovery to date. It has also now completed two more producers at the discovery site from a multiwell platform. So far, five wildcats have been abandoned since drilling started in late 1957 on the offshore acreage, held by Texaco, Continental, Ohio Oil, Cities Service, and Richfield Oil (L.A.).

LIBYA—Libyan-American (operator for Texas-Gulf Producing and W. R. Grace) spudded a new wildcat, E-1-17, on a new structure in its Block 17. The company has abandoned D-1-17 on the same block at 5,096 ft. On Block 20, Libyan-American is rigging to drill its Amar wildcat (B-1-20) after abandoning its A-1-20 at 5,606 ft. The two tracts are involved in a farmout agreement between Libyan-American and Esso, but Esso has not yet taken over operation on them.



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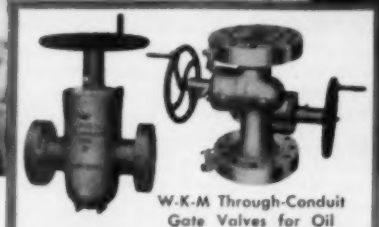
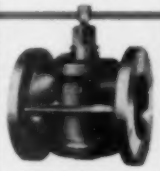


W-K-M Through-Conduit Gate Valves for Oil Field Service Catalog 200

W-K-M Through-Conduit Gate Valves (ASA) Catalog 300

W-K-M's Pressure Sealing Gate Valves (ASA) Catalog 1200



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New Union Moves Against Tankers

The International Maritime Workers Union has made its first move against tankers in its drive to organize the crewmen of U. S.-owned foreign-flag ships.

IMWU was organized last December by the National Maritime Union and the Seafarers International Union. Main target of its unionizing efforts are ships of U. S. ownership sailing under the flags of Liberia and Panama. Reason: Hundreds of U. S.-owned ships—including more than 300 tankers—have been registered in these two countries to take advantage of a wage differential of about $440 a month between U. S. and alien seamen (PW—Feb.4'60,p43).

The American Committee for Flags of Necessity, representing the shipowners, asserts that Pan-Lib registry is the only way they can compete with European vessels, and, at the same time, keep their ships under the "effective control" of the U. S. government for defense needs.

IMWU has filed charges with the National Labor Relations Board against National Bulk Carriers, Inc., and its affiliate, Universe Tank Ships, Inc., as the first step toward calling for elections among the companies' tanker and dry-cargo-ship crewmen.

National Bulk is agent for Universe and other affiliated companies, which operate 39 tankers. All are U. S.-owned, according to the company. Only 12 are registered in this country, however. The remaining 27 sail under the flag of Liberia.

The essence of the charges is that the company has used "intimidation" to dissuade its seamen from expressing a preference for IMWU over their present union, the Global Seamen's Union. Nonetheless, IMWU says, most of the men have pledged their support in writing.

As an instance of intimidation, IMWU claims that National Bulk fired a third assistant engineer for acting in its behalf on the company's cargo ship, the Ore Jupiter.

In its petition, IMWU asked NLRB to "de-authorize" the Global Seamen's Union.

The key question is whether U. S. labor laws have jurisdiction over ships of foreign registry. If they do not, then NLRB, of course, can take no action.

The board is considering this question now. But whichever way it is decided, the loser is expected to appeal all the way to the Supreme Court, if necessary.

National Bulk flatly denies IMWU's charges.

A company spokesman says the Global Seamen's Union effectively represents the crewmen on its foreign-flag ships.

GSU was formed in Grand Cayman, British West Indies, in 1959, under the Trade Union Act of 1942 of the Cayman Islands, according to the spokesman.

He says that all of the men on the company's Liberian-flag ships are members, but that membership isn't a prerequisite for employment.

"NLRB has no jurisdiction over a union that has been certified under the British Crown," he asserts.

An IMWU spokesman, on the other hand, charges that GSU was set up expressly for the purpose "of using it against our attempts to organize the company." And he adds bluntly that the company's crewmen "are forced to join it."

IMWU claims thus far to have obtained signatures from more than 2,000 crewmen on tankers of several companies in support of its efforts.

Among the companies whose crews have been approached, according to the union, are Afran Transportation Co. (the Liberian tanker subsidiary of Gulf Oil Corp.), the Onassis group, and Naess Shipping Co., as well as National Bulk Carriers.

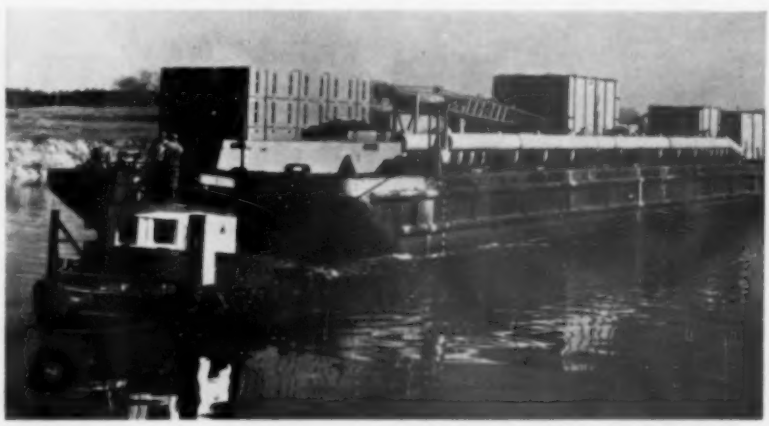
Queried as to IMWU's claim, Gulf Oil reports that to the best of its knowledge no attempts have been made to muster support among its Afran crews. A spokesman for Onassis says that IMWU hasn't made any headway with its men.

Nevertheless, tanker owners and oil companies reportedly are growing increasingly wary of the union's moves.

There's a growing feeling in the tanker industry that if IMWU does succeed in winning jurisdiction over the crews of foreign-flag ships, owners will attempt to reregister their ships under certain European flags—preferably that of Great Britain.

A highly placed official in a tanker firm says: "The union has got people upset and running around spending millions of dollars on lawyers. But it's a waste of time. The most they'll accomplish is to drive ships into European registry where they won't be allowed to touch them."

The union believes it has an answer to this. An IMWU spokesman says, "We can't account for what the shipowners will do, or what the U. S. government will let them do. But if they put their vessels under the British or Scandinavian flags, then they'll cease to be under the effective control of the U. S. government."



Open Barge Starts 7,500-Mi. Voyage

This 200-ft. long barge is starting out from Houston's Buffalo Bayou on a 7,500-mi. ocean trip to Tierra del Fuego at the southern tip of Argentina. It's loaded with construction equipment and material, which Tennessee Gas Transmission Co. will use to build a 6-mi. pipeline and deepwater tanker-loading facility. The barge and the deep-water tug used for the ocean trip belong to Brown & Root, Inc.

engine power BY CATERPILLAR

THIS CATERPILLAR D397 DIESEL IS OPERATED BY FINGER TIP 122 MILES AWAY

The Cat D397 shown below is the sixth repeat order by this company's Pipeline Department. "The Caterpillar Diesel has reliability and economy that have proved to be very satisfactory for this pipeline application," says Division Superintendent V. J. Hansen.

This booster station on the pipeline system of a major midwestern oil company is located at Sauk Centre, Minnesota. It is remotely controlled from Moorhead, 122 miles away. It can also be controlled from any point on the system of leased telephone circuits.

Automatically controlled by dial code over leased telephone lines, this pumping station, powered by a Caterpillar D397, has a record of 99 per cent reliability.

Diesel is preferred to electric power, first, because lack of electricity in the vicinity means high construction costs for the needed facilities. Second, with diesels, no standby or demand charges build up operating costs. And third, the better speed variability of diesels is more efficient for this installation because the station is downstream from a terminal that sometimes takes full receipts, sometimes only half and sometimes none.

The Caterpillar Turbocharged D397 Diesel is rated 650 maximum HP. This engine is also available in 7.5:1 and 10.5:1 compression ratio Natural Gas versions for extra economy where this low-cost fuel is available. Your Cat Dealer will recommend the right power for your job from the 75 HP D311 to the big D397. Call him today. And remember to specify Caterpillar when ordering new equipment.

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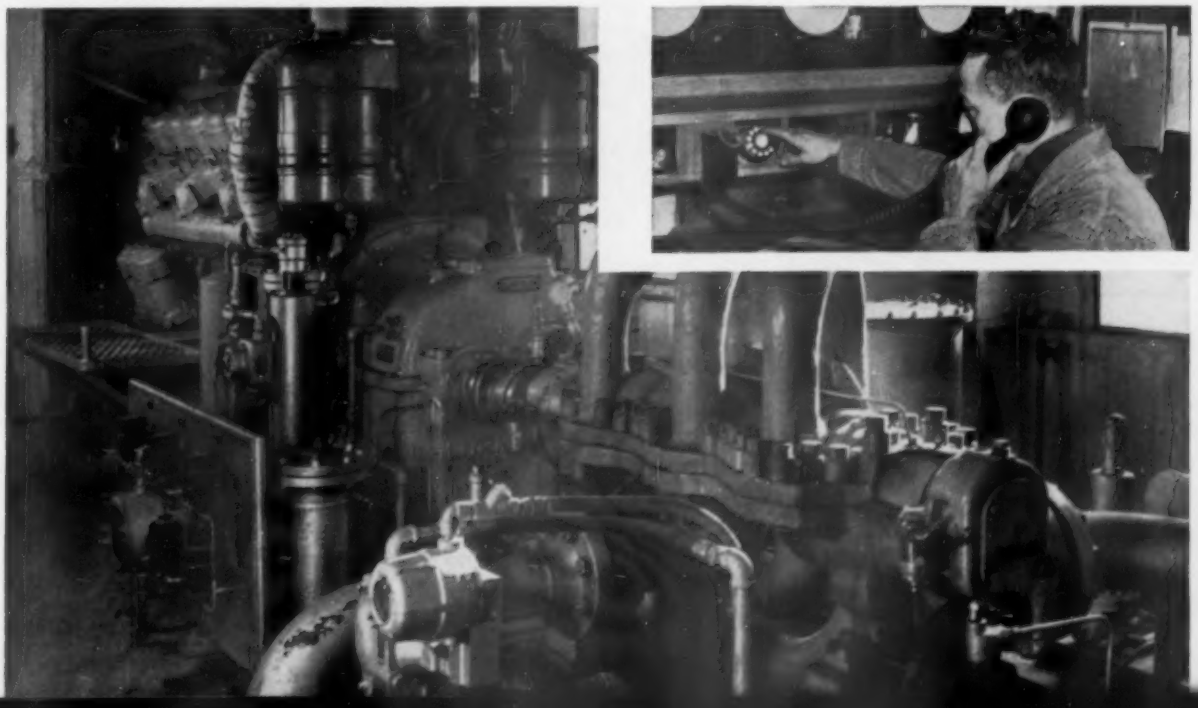
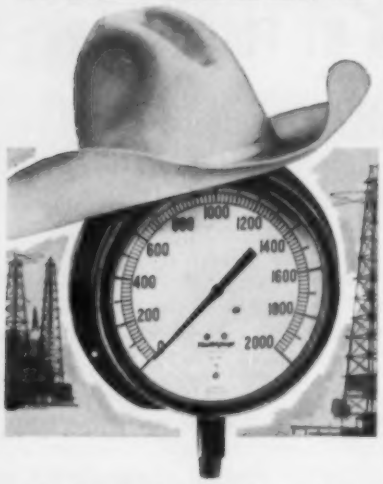
Engine Division, Caterpillar Tractor Co., Peoria, Ill.



OIL KING



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For what other gauge has the Marsh heritage of functional design innovations? Only Marsh offers Conoweld construction, the Marshalloy case, "coined" sector Mastergauge movement, "Recalibrator" adjustment, and optional Safecase protection plus.

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What's New / IN TRANSPORTATION

Another major oil company and a marketers group have joined the growing opposition to the pending proposal to require that 50% of oil imports be carried in U.S.-flag tankers (PW—Mar.25'60,p49).

The proposal is being advanced by the Joint Committee for American Flag Tankers and the Committee of American Tanker Owners, Inc. (PW—Feb.5'60,p49).

Texaco Inc. warns the Office of Civil & Defense Mobilization that granting their appeal would "force the spot tanker market to artificially high levels."

The Independent Oil Men's Assn. of New England concurs, stating that adoption of the proposal "would increase the delivered price of fuels."

•

"We are facing a concerted effort on the part of the railroad industry to destroy the independent water carriers in this country," a spokesman for the American Waterways Operators, Inc., told a Senate investigating committee last week.

At hearings before the Senate's subcommittee on merchant marine and fisheries, A. C. Ingersoll, president of Federal Barge Lines, Inc., blamed a decline in shallow-draft water carrier trade on "destructive rate-making" by railroads.

Meanwhile, in Washington last week, the barge and railroad industries were awaiting new developments in Interstate Commerce Commission hearings on a petition of Illinois Central R.R. and Southern Pacific R.R. to buy for $9-million the John I. Hay Co., a Mississippi and Gulf Intercoastal Waterway barge line.

•

Buckeye Pipe Line Co. plans to extend its crude line from Toledo to Samaria, Mich., and then on to Trenton and Detroit.

Cost of the 54 mi. of new lines will be over $4-million.

The first leg of the extension will consist of 22-in. line, and the second segment of 16-in. line.

•

Teton Pipeline Co. has asked authority from the Wyoming Public Service Commission to spend about $2.5-million to build a crude pipeline network in the northeast part of the state.

The new system would include a 6-in. line from Miller Creek field to Rozet field, an 8-in. trunk line from Rozet to Salt Creek field, and a 6-in. lateral from Dead Horse and Barber Creek fields to Salt Creek.

•

Construction of the proposed products pipeline of the Katy R.R. appears assured, with all of the $30,135,000 in securities offered to finance part of the project reported sold.

A spokesman for one of the underwriting firms handling the sale told PETROLEUM WEEK this week that all of the money would be in the hands of Mid-America Pipeline Co., the Katy subsidiary that will build the line, by the end of the week.

Of the total cost of the two-pronged line, $45-million will be underwritten by Prudential Life Insurance Co. (PW—Feb.26'60,p47).

•

Humble Pipe Line Co. will build a 63-mi. crude line and gathering system in Southwest Texas.

The new 8-in. line will run from Sacatosa field, Maverick County, to Humble's main pipeline system at Pearsall.

•

Correction

Gulf Resources, Inc., and Natural Gas Gathering Co., a subsidiary of Dehli-Taylor Oil Corp., plan to sell gas from Zapata and Starr Counties, in South Texas, to Tennessee Gas Transmission Co.

Gulf Resources is not a subsidiary of Delhi-Taylor, as reported (PW—Mar.25'60,p50).

•

The U.S. Air Force reports that its Plattsburgh (N.Y.) Strategic Air Command base is served by the pipelines of two companies, Holly Corp., Port Douglas, N.Y., and Metropolitan Petroleum Terminals, Plattsburgh.

Okan Pipeline Co., Tulsa, does not have a line to the base, as reported (PW—Mar.18'60,p63).

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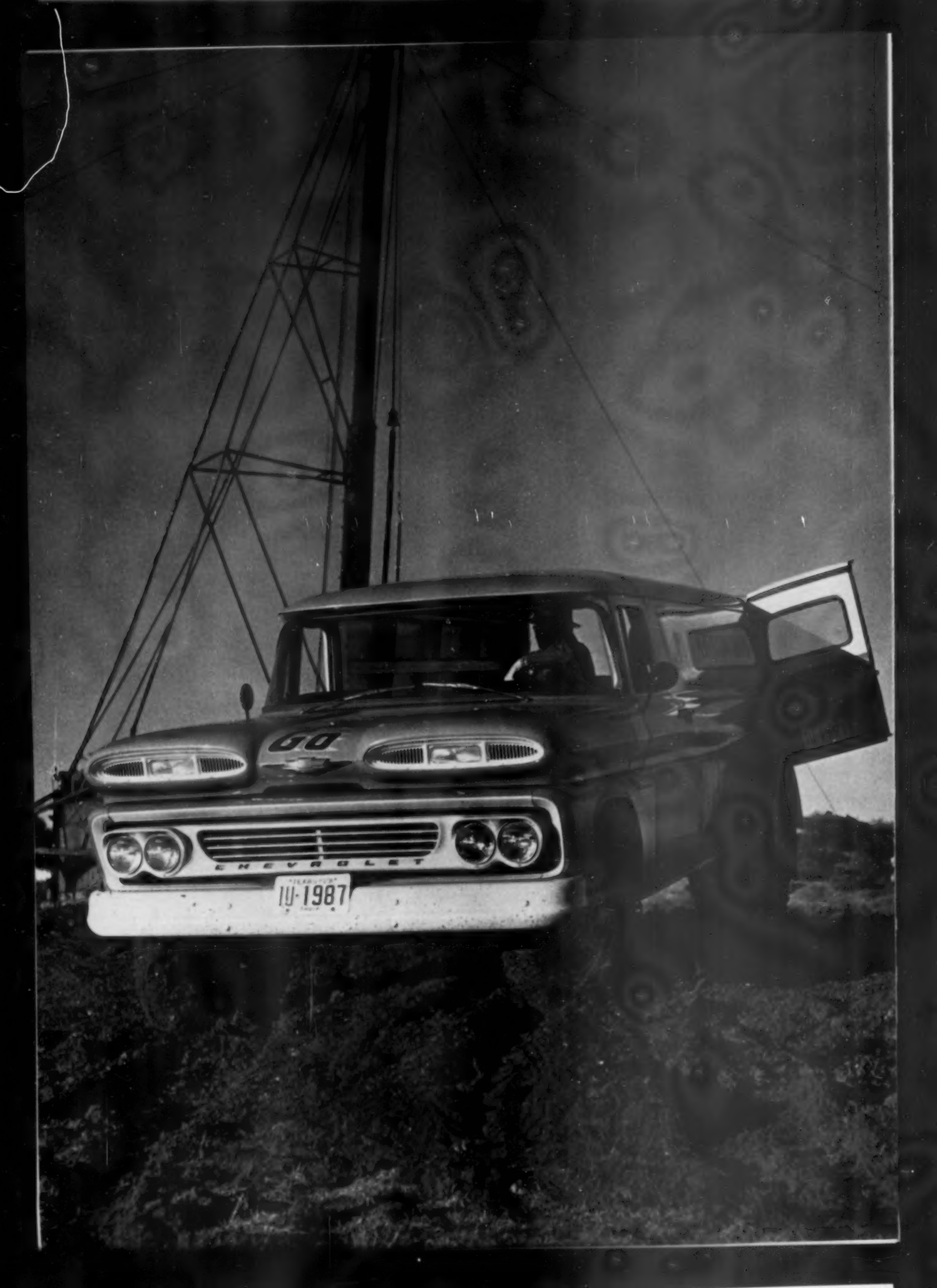
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CHARLIE OWEN STAKES HIS WHOLE OPERATION ON CHEVY'S STAMINA AND TORSION-SPRING RIDE

C. L. Owen, vice-president of GO Oil Well Service, Fort Worth, puts his faith and $15,000 worth of electronic equipment in his Chevy panel and sends it out on rugged oil field duty every day of the week. They used to have to pad the sensitive electronic recording panel to cushion out road shock and vibration. But not any more. Not with torsion springs soaking up bumps and jolts. Chevy's new ride is "made to order," according to Charlie Owen. "In our oil well locating operation we stay on the go anywhere, any time . . . and count on less breakage along with lower maintenance costs." The GO company goes for Chevy 100%. Driver John MacPherson says, "The '60 Chevy's ride and handling are really slick. You'd think this truck had power steering."

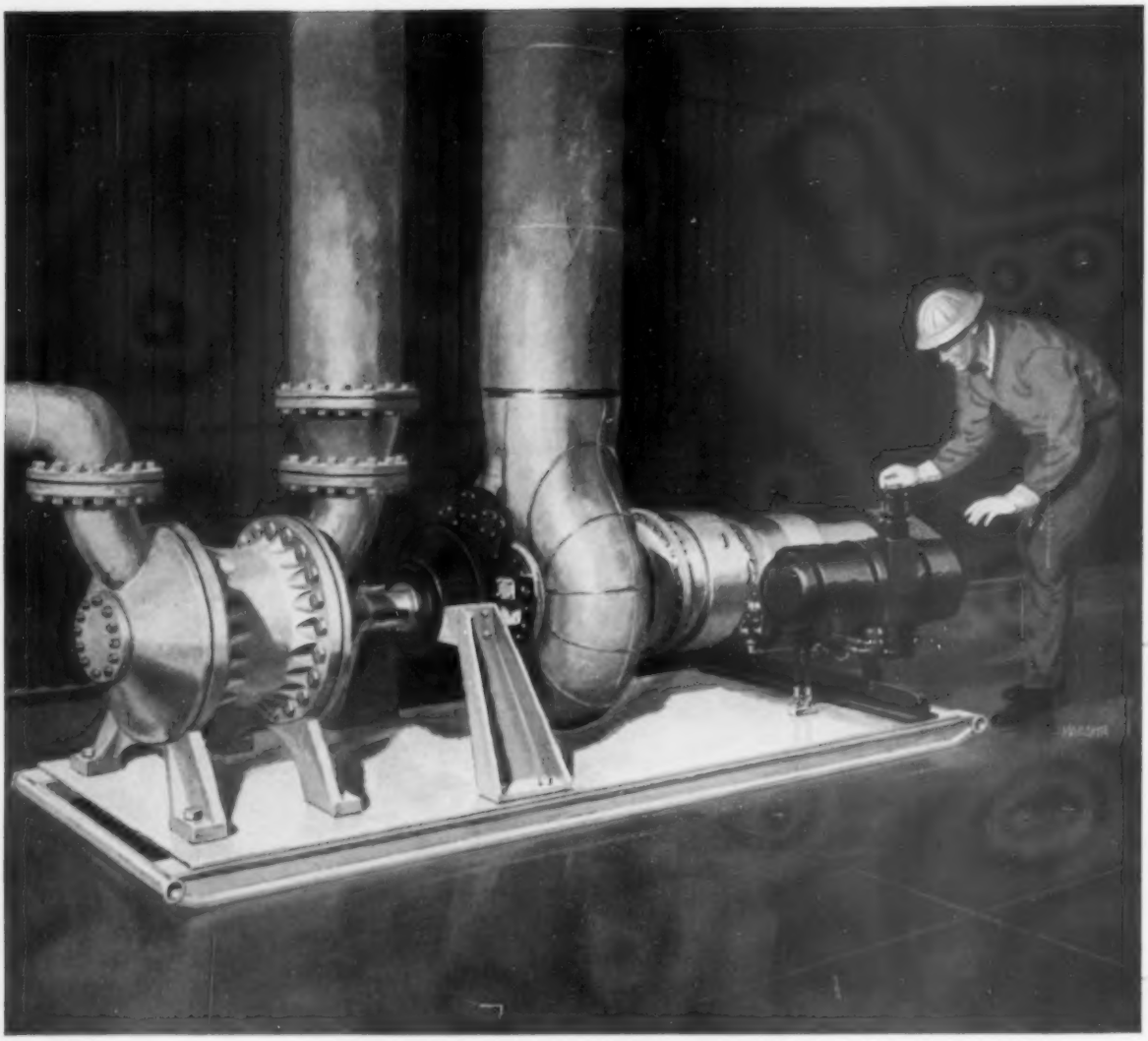
■ They're speaking right up, these owners of '60 Chevrolets, talking about a new truck build that's the best yet at putting out extra dollars'-worth of profit-producing work every day. And you'll be talking, too, once you turn these Chevy advancements loose on your money runs!

New truck-and-tire-saving ride that leads to shorter trip times, too. The biggest advance in trucking in years: independently suspended front wheels that step right over bumps, virtually eliminate most of the severe impacts that can wear out trucks and tires before their time. You profit by a big savings on maintenance; get a bigger daily work output because these trucks float you over rough roads with fewer slow-downs. And the tough torsion bar springs assist further in soaking up shocks before they can do any damage.

New longer lasting cab construction . . . new comfort that boosts driver efficiency. You'll find that drivers stay fresher, work better in a new Chevy cab. There's more leg room, head room and hip room than ever before, new visibility that's greater by more than 26%, new foam-padded seat, new see-at-a-glance instrument panel. And new cab construction features—double-panel roof, box-section door pillars and many more—will help keep your Chevy on the road years longer.

Tough truck power that knows the most about saving money. Efficient Chevy short-stroke V8's that range from 160 h.p. all the way up to 230 h.p., offer as much as 335 ft.-lbs. of torque for toughest going. Or America's most widely used truck 6's, engines that do more work per dollar with time-proved, truck-built components. Look into it for yourself; Chevy's totally new working ability is available at your Chevrolet dealer's right now. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS CHEVROLET



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Solar industrial gas turbine-driven centrifugal compressor offers advantages found in no other type

SOLAR'S LIGHTWEIGHT centrifugal compressors incorporate unique new features for applications in the low-volume range. They operate in a range of flows and pressures new to centrifugal equipment. Interchangeable compressor wheels and other parts permit quick, low-cost field changes to accommodate new flow and pressure requirements. Ideal for main pipeline stations as well as field use, they can be started or shut down in seconds—even by remote control—and are ideal for unattended operation.

Designed to match the high rotating speeds of Solar gas turbine drivers, Solar's new compressor packages are small and lightweight (a fraction of the weight of conventional piston-driven units). They require only the lightest foundations. Maintenance is simple. Easy portability allows periodic inspection at a central shop.

A new illustrated brochure describes in detail Solar centrifugal gas compressors. Write for it to Dept. G-188, Solar Aircraft Company, San Diego 12, California.

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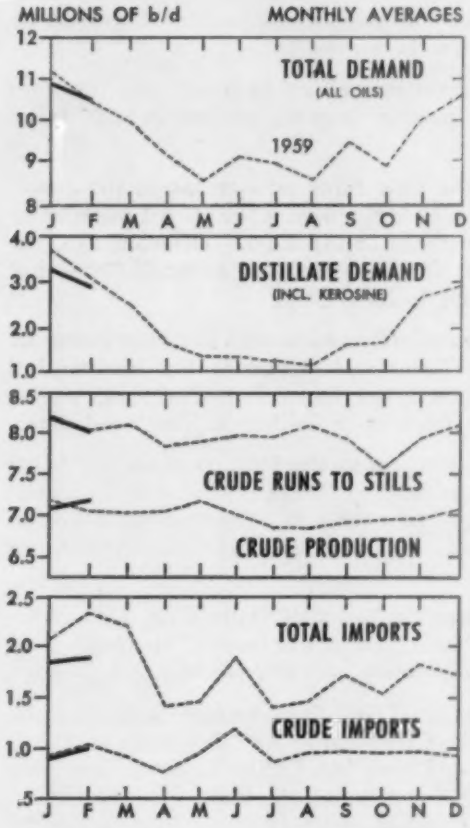


Supply-Demand Figures for March

(millions of b/d)

	March 1960	% Change from year ago	3 Months 1960	% Change from year ago
Total Demand (Inc. Exports)	10.915	+ 8.6	10.756	+ 1.1
Gasoline	3.834	— 1.2	3.757	+ 0.2
Distillates (Inc. Kerosine)	3.277	+28.0	3.196	+ 1.8
Residual	2.004	+ 0.3	2.002	— 4.2
Total Supply	9.792	— 4.8	9.901	— 3.9
Domestic Crude	7.104	— 1.2	7.173	— 0.4
Nat. Gas Liquids	.890	+ 0.9	.890	+ 1.1
Total Domestic	7.994	— 0.9	8.063	— 0.2
Crude Imports	.924	+ 1.9	.939	+ 2.3
Total Imports	1.798	—18.9	1.838	—17.3

Figures for period ended April 1, except as noted

RUNS TO STILLS

Latest week	7.916
Previous week	7.945
Year ago	8.199

CRUDE PRODUCTION

Latest week	7.151
Previous week	7.078
Year ago	7.129

TOTAL IMPORTS

Latest week	1.837
Previous week	1.599
Year ago	2.270

CRUDE IMPORTS

Latest week	.967
Previous week	.842
Year ago	.928

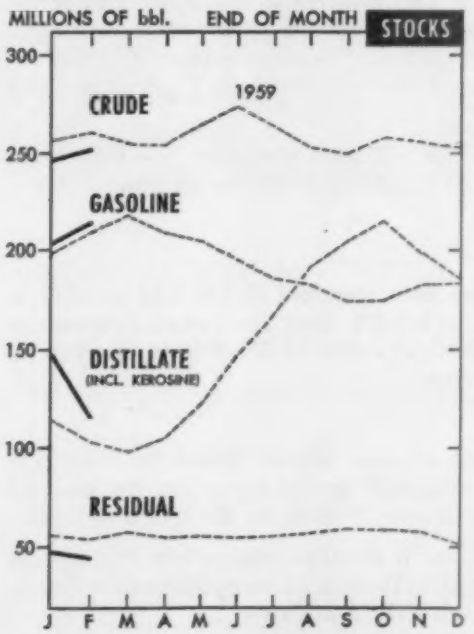
The oil industry gained plenty of ground last month, thanks to the weatherman.

A sharp upturn last month pushed total demand for the first quarter 1.1% above the like period in 1959. Demand in March —assisted by weather 33% colder than normal—showed an 8.6% increase over last year.

The cold weather brought stocks of kerosine, distillate, and residual below the year-ago levels.

Stocks of kerosine were 17.5-million bbl. at the month's end, down 1.1-million bbl. from March, 1959. Distillate inventories were 75.1-million bbl., 3.8-million bbl. under last year's figure. Residual stocks at 39.1-million bbl. were 19.8-million bbl. below 1959.

Gasoline stocks dipped slightly last week, to 225.6-million bbl., down 392,000 bbl. from the previous week.



CRUDE STOCKS

Week-ended	
3-26	257.6
Previous week	258.9
Year ago	254.3

GASOLINE

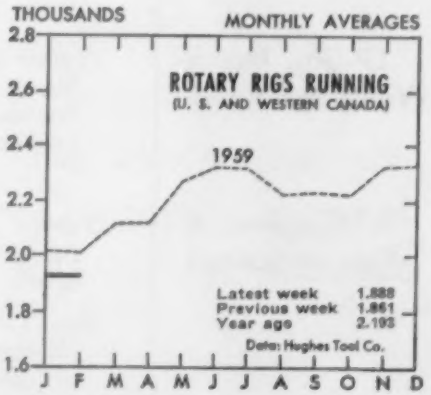
Latest week	225.6
Previous week	226.0
Year ago	213.4

DISTILLATES

Latest week	92.7
Previous week	96.1
Year ago	97.3

RESIDUAL

Latest week	39.1
Previous week	39.9
Year ago	58.7



The Market Trend

Needed: An Answerman for Heavy Fuel

The rise in bunker "C" fuel prices at the Gulf last week, from $2.00 to $2.10 a bbl., prompts many questions. Between cokers and declining yields, heavy fuel at the Gulf is not the important product it used to be. How, then, should an increase there be viewed?

Question No. 1: Was the increase at the Gulf justified? Yes. Offerings have been scanty at the Gulf for months. Bids for product at $2.00 failed to raise offerings.

Will a bunker "C" rise at the Gulf force an increase in the quota-locked consumer markets in the East? Supplywise, a Gulf Coast move today shouldn't necessarily force an increase in the East. Ten years ago, the move would have been automatic. Now, however, only about 75,000 b/d of residual moves from, say, the Gulf to New York.

If the Gulf Coast is as light on offerings as traders say, where else can they go for domestic supplies? West Coast shipments are feasible, but offerings there are disappearing. A major buyer estimated that "maybe another million barrels" could be lined up in California. That's not much.

With all the uproar about shortages in the East, is there any other stopgap reservoir of residual available? Yes. There is bonded oil in coastal tanks for international bunkering. There are also military supplies held in bond. These latter, however, would only carry the East Coast for three or four days.

Is there a lot of "ticket trading" in residual? Quite a bit. Lots of the smaller holders of quotas have sold allocations. The "street" trading in New York puts the price of a quota somewhere near 50¢ per bbl., per day.

And the killer of all questions is: If Gulf Coast residual holds at $2.10, or even advances, will prices in the Caribbean follow? The basic conflict is that Gulf Coast prices easily could rise, but Caribbean prices are very weak. Historically, the Caribbean has followed the Gulf.

For now you're in the realm of politics—that is, if you weren't already there. "If the Venezuelan government waves the stick," one source commented, "fuel oil prices there will go up." The catch here is that residual sells on the open market in the Caribbean closer to $1.60 than $2.00 right now.

Answers to the residual question will come from New York, Washington, Houston, and Caracas. And no two size-ups will be the same.

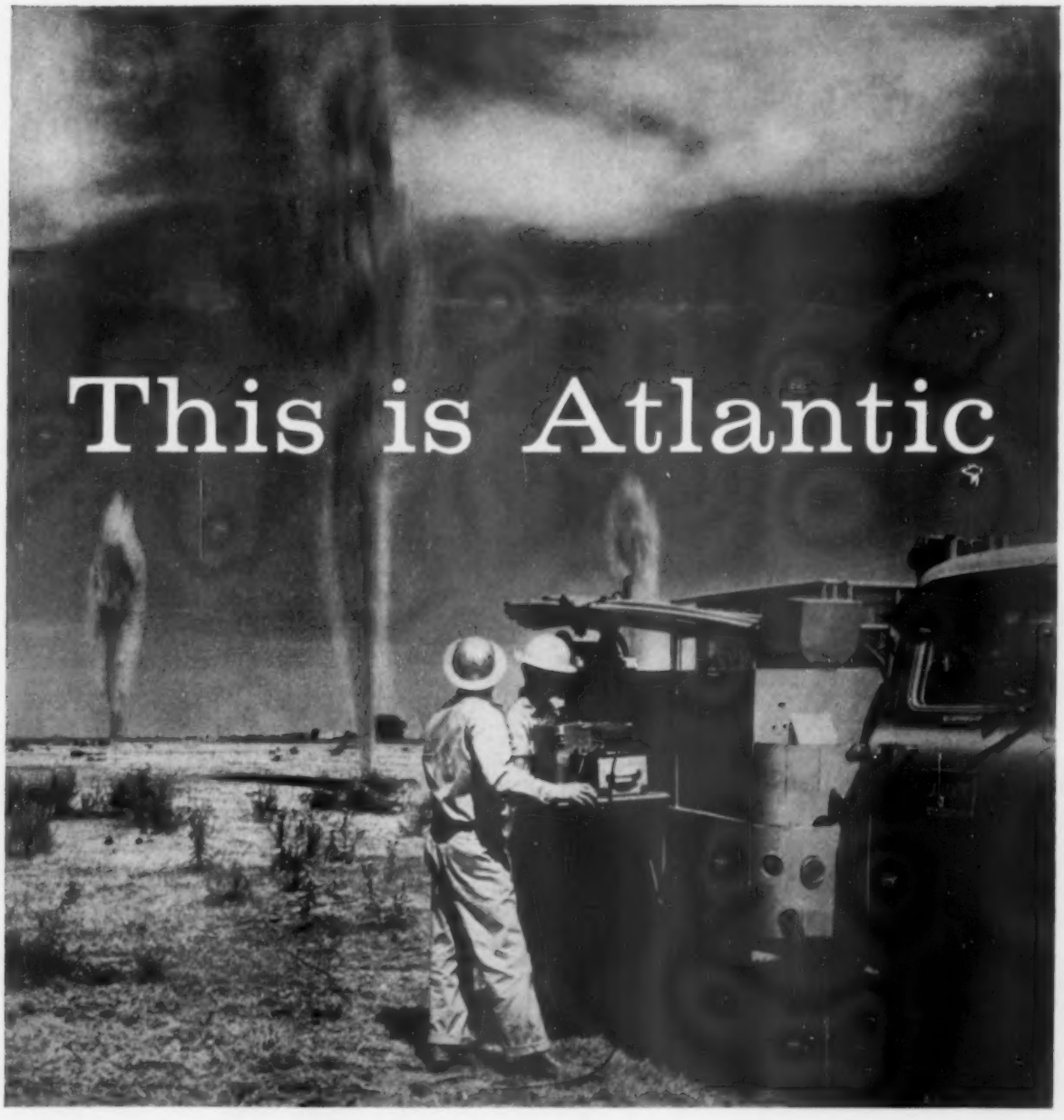
LP-Gas: March Weather Helped:

Further declines in LP-gas prices were stemmed by the cold weather in March. Total LP-gas inventories fell 8% from the end of February to the middle of last month, with total stocks at 591-million gal. March's cold weather helped to firm prices.

Gasoline: A Sign of Spring?

Midwest refiners are tired of the squeeze between prices for crude and products, and some of them this week are hiking prices for gasoline. Boosts of 0.25¢ are being posted—put it down to the return of spring.

There's lots of room for improvement in retail gasoline prices. Postings are off anywhere from 2¢ to 10¢ a gal. in Detroit, Chicago, Milwaukee, Peoria, St. Louis, Kansas City, Oklahoma City, and Tulsa.



PRODUCTION: Atlantic searches for oil...actively developing new sources of crude across America and other parts of the world to meet future needs for quality gasolines, heating oils, lubricants, waxes, heavy fuels, asphalts, petrochemicals and jet fuels. Look to Atlantic to continually serve industry with high-quality products at lowest possible cost.

ATLANTIC

THE ATLANTIC REFINING COMPANY

Producer, refiner and marketer of quality petroleum products

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of April 4

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 11.75-12.75
- Gasoline, 92 oct reg 10.75-11.5
- Kerosine 9-10
- Heating oil, No. 2 8-9
- Gas oil, 48-52 d.i. 8.25-8.875
- **Fuel oil, bunker "C" ..... $2.10↑-2.20↑**

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 14.75
- Gasoline, 93 oct research prem 11
- Gasoline, 87 oct research reg 10.125
- Gasoline, 79 oct research 9.375
- Gasoline, 70-72 oct motor method 9.25
- Kerosine 9.25
- Heating oil, No. 2 8
- Gas oil, 48-52 d.i. 8.25
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- Kerosine 9.8-10.3
- Heating oil, No. 2 ..... 8.8-9.3
- Fuel oil, No. 6 ..... $2.47

Okla.-Group 3, northern shpt., bulk
- **Gasoline, 91 oct reg ..... 11.5↑-12.25↑**
- **Kerosine ..... 9.5-9.75↓**
- **Heating oil, No. 2 ..... 8↓-8.5**
- Fuel oil, No. 6 ..... $1.50-1.70

Chicago, bulk
- **Gasoline, 91 oct reg ..... 11-11.5↑**
- Heating oil, No. 2 ..... 8.75-10.35
- Fuel oil, No. 6 high sulfur 7.15

Los Angeles, rack
- Gasoline, 88 oct reg 11.5-12.65
- Diesel fuel, PS 200 ..... 7.75-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 4.5-5
- Propane, Baton Rouge 5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t. 23
- 200 vis. neutral, 25 p.t. 27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 25-26
- Neutral, solvent, 200-210 vis. 21.5-22.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 25
- Neutral, solvent, 200 vis. 21.5

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/300 ..... 15.875
- Gasoline, 79 oct research 9.75
- Kerosine 10.125
- Gas oil, 48 d.i. minimum 9.5

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except at noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9 ..... $2.62-2.97
- North Dakota, 36.0-36.9 ..... 2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N.M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N.M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.05-3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 4.55
- California, Signal Hill, 21.0-21.9 ..... 2.32†
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) $2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask.) 2.435
- Virden (Man.) 2.30

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido $3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat, Las Piedras 1.75-1.88
- Tarra, 38.0-38.9, San Lorenzo 2.83
- Lagunillas Heavy, flat, Las Piedras 2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.90
- Safaniya, 27.0-27.9, Ras Tanura 1.50
- Iran, 34.0-34.9, Bandar Mashur 1.86
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.67
- Qatar, 41.0-41.9, Umm Said 2.05
- Neutral Zone, Burghan, 23.5-24.4, Mina Saud 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.38

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon $2.27
- Iraq, 36.0-36.9, Tripoli, Banias 2.31

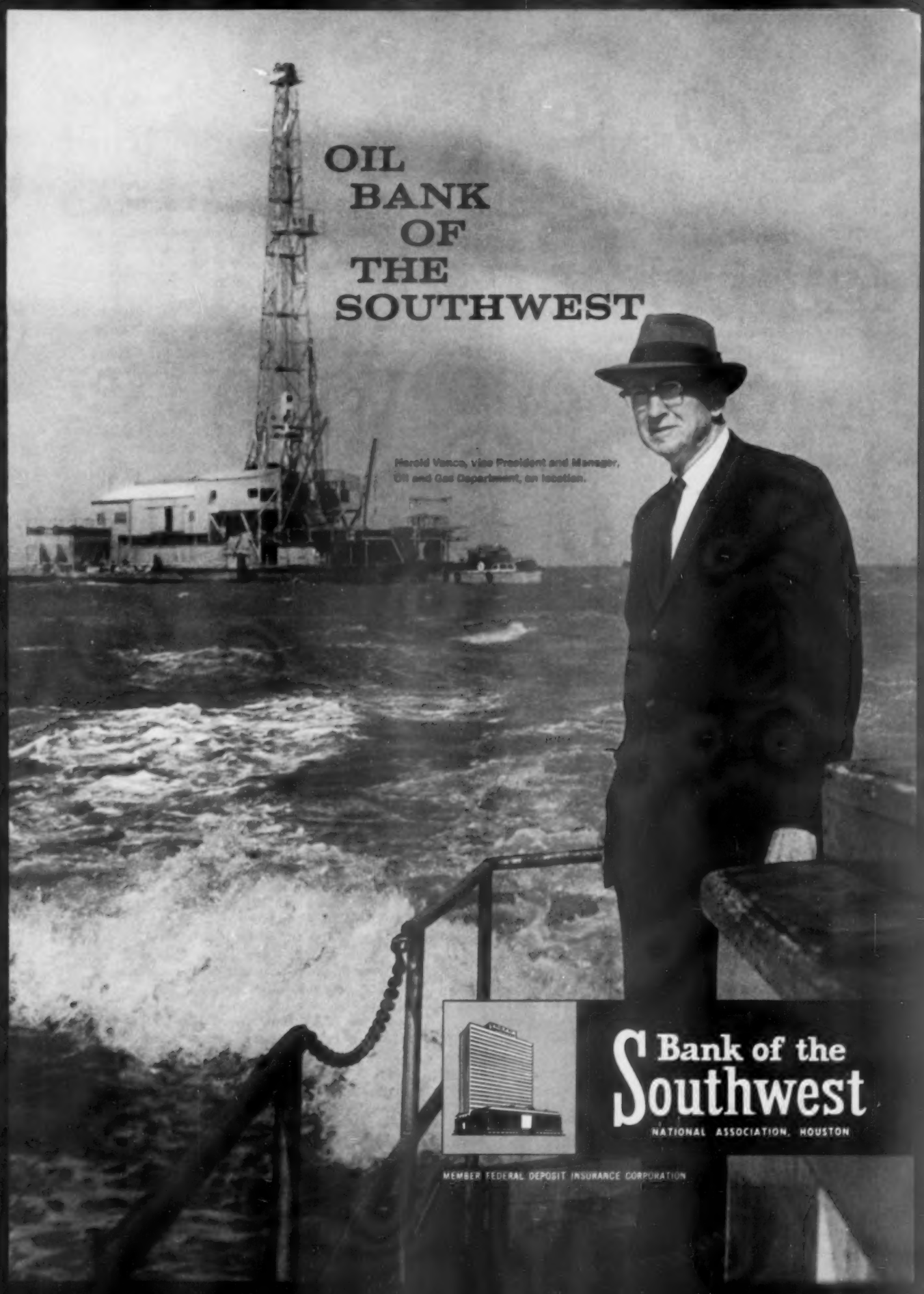
Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean ... (USMC—5%) $2.71↓**
- **U.S. Gulf-New York, dirty .. (USMC—10%) $2.47↓**
- **NWI-USNH, dirty ..... (USMC—50%) $1.38↓**
- **NWI-UK/Cont., dirty .... (Scale—52½%) 15/7*↓**
- Pers. Gulf-UK/Cont., dirty ..... (Scale—62½%) 18/4*
- Persian Gulf-USNH, dirty ..... (USMC—70%) $3.81

**Sterling*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A special message to everyone born between 1938 and 1942

Hey, there! You with the freshly-starched diploma in your hand! Discouraged with your first hard look at this topsy-turvy world? Think someone chopped out the rungs in the ladder of success? Think opportunity is dead?

Don't you believe it! Today, opportunity under America's free enterprise system is more alive than ever! Within the next few years, you'll see space travel programs accelerate and inspire now unheard-of products. You'll see standards of living go up. You'll see exciting new jobs created out of nowhere.

Take our own business, for example. Oil. In the next few years, we *know* Standard Oil will create a cornucopia of new products and new processes. And that means opportunity! But it takes time, work, and study to turn opportunity into advancement. People who are willing to put forth the extra effort to prepare for greater responsibility will find opportunity awaiting them.

Is opportunity dead? Whenever we hear that question, we think of the thousands of people who won promotions last year at Standard Oil and the fact that most of our officers and directors since this company started have come up through the ranks. No Standard job is too big a target for any employee...if he listens for opportunity's knock and is ready for it when it comes.

Opportunity dead? Not by a long shot!

WHAT MAKES A COMPANY A GOOD CITIZEN? One way to judge is by a company's economic effect on a community. Is it growing? Is it progressive? Will it provide opportunities for advancement? For the five years from 1954 to 1959, Standard spent $1.4 billion on new facilities. Expenditures like these help to create new opportunities.

STANDARD OIL COMPANY
(INDIANA)

STANDARD

THE SIGN OF PROGRESS...
THROUGH RESEARCH

DEPT/Marketing

Ford Wants New Oil Can Markings . . .

Ford Motor Co. insists that the oil industry needs a new way of labeling motor oils.

And to a great extent, Ford is getting its own way. Some 30 oil companies (many of them majors) have gone along with Ford's recommendations (box, below). These companies market about 75% of all the oil sold in this country, Ford estimates.

But API's Lubrication Committee has thus far declined to adopt Ford's recommendations.

Since last fall, the committee has considered modifying its engine service classification for motor oils. Its most recent deliberation on the question took place in February (PW—Feb.19'60,p95).

The committee decided then that each individual oil company, rather than API, should decide on the specific wording it would use on motor oil containers.

It is this seeming reluctance of the Lubrication Committee to "come to grips with" the oil labeling problem that puzzles Ford.

There are some oil men who feel that Ford is trying to reduce all motor oils to a minimum specification.

Ford is aware of this feeling. "But we're not looking for a label that is going to knock down all oils to a common level," Victor Raviolo, executive director of Ford's engineering staff, told PETROLEUM WEEK.

"But we are looking for a description of an oil that will guarantee our customer that it will do the required job. That's what we want."

Ford insists that a new labeling system is necessary because the present API system "doesn't mean anything today." It's too broad, in Ford's opinion.

Ford's main criticism lies with oils that are marked "Service MS" (maximum service). Under this designation, "an engine should receive from the lubricating oil the maximum possible protection against wear and deposits under all operating conditions," according to the API definition.

But the MS marking has been used "indiscriminately," says Raviolo. "Everything in the whole range of oils has been labeled MS," he charges.

Without going this far, oil men agree that oils with the API designation do vary in characteristics. But this can't be helped, they say.

Local conditions (such as climate), the intended end-use of the oils, and the competitive aims of the supplier all influence the characteristics of oils marked for "Service MS," they say.

Therefore, the definition of "Service MS" must necessarily be broad, they insist.

But because of this broadness in label markings, says Ford, many of its customers inadvertently choose incorrect oils for their cars. Result: Customers complain about the operation of their cars, and Ford incurs a substantial warranty cost.

Ford is particularly disturbed that up to three oils at certain service stations may be all marked "Service MS." How can the motorist decide, Ford wonders?

To correct this situation, Ford feels that it must tell its customers how to differentiate among oils.

Ford now urges its customers to use only those oils that have passed certain tests developed in Detroit.

Technically referred to as the car makers' ASTM G-IV test sequences, these criteria were developed by the three major auto manufacturers around their individual automobile service problems.

Here's how A. E. Cleveland, manager of reciprocating engine development for Ford, describes the problems:

"In the case of one manufacturer, its problems were largely that of rusting and high-speed phenomena, such as varnish formation and ring sticking. It wrote three test sequences around these problems.

"Another manufacturer has had a problem with regard to cam and tappet wear. This resulted in a fourth sequence. Then our sequence, the fifth, was written around the sludge problem, the taxicab-service type of problem.

"We certainly didn't have an exclusive problem in that area, but neither did the others have exclusive problems in their fields. We combined the five sequences to define existing oil problems."

Many oil men feel that Ford is putting stress on the engine tests just to protect itself on its 4,000-mi. oil-change recommendation.

By adhering to this recommendation (which is among the longest in the industry and twice as long as

. . . and Many Marketers Are Going Along

About 20 oil suppliers have started marking their oils to signify that they equal or exceed the auto makers' minimum requirements.

In a recent service letter to its dealers, Ford identified some of these "acceptable" oil can markings. Here are a few:

- "This oil meets all requirements of automobile manufacturers' test sequences."
- "Exceeds auto makers' engine test sequences for MS service."
- "Excels in MS test sequences."
- "Engine test sequence tested."
- "Proved superior by car makers' MS service tests."

Ford is satisfied with the oils that are marked this way, and has advised its dealers to recommend them. But Ford would also like API to change its "Service MS" marking to conform with the engine tests.

"API could by joint resolution agree that anybody could label himself with a sort of 'Good Housekeeping Seal of Approval' if he satisfies these minimum conditions, and leave it to each company's judgment and discretion to do so," says Victor Raviolo, executive director of Ford's engineering staff.

But, recognizing the difficulty in this, Raviolo suggests an alternate course: "Let API take its present description of MS, just as it stands, and then append one sentence: 'These conditions are described in ASTM sequences one through five.'

"If they said that, they would then tie down MS to some meaningful factor. Then, if companies were to use MS on the label, they could not do so unless they had made a sincere attempt to evaluate their performance in these tests."

API's 2,000-mi. limit), Ford has rankled many oil executives who are concerned about the fall-off in lube sales.

Furthermore, oil company lube experts feel that the engine test sequences were intended as a common language between the oil industry and the auto industry. They were not intended as specifications or customer recommendations.

If Ford would only come down to a 2,000-mi. change-over, they say, it wouldn't have to insist on oils that can pass the ASTM engine test sequences. (As many oil men will admit, there are several oil companies —including majors—that don't market oils that can pass these test sequences.)

But Ford is adamant on the 4,000-mi. oil-change recommendation. It wants to stick to a recommendation that makes demands on motorists only twice a year—not every month or two.

In addition, Ford would like its customers to change their motor oil only when they have to change their oil filters. These "full-flow" filters were especially introduced by Ford to last 4,000 mi.

Ford insists that there are oils on the market that will last 4,000 mi.—so why not tell the motorists which oils these are? And here Ford feels that it is speaking for the entire auto industry.

In this position as spokesman for Detroit, Ford has gone to the oil companies that do market a "4,000-mi." oil: "You have done the research," Ford has said, "You have put in the processes to deliver a superior product. And you're labeling it with a common label that doesn't distinguish it at all from other oils."

Ford feels that it is in the interest of these companies to have a way of labeling their "superior" oil.

"Then, the second step comes, of course," says Raviolo. "The supplier without a 4,000-mi. oil must change to be competitive. Then it is in his interest to identify himself with a superior product. So with this simple logic, it's apparent that it's really in the interest of API members to support this kind of activity aggressively."

Three New Gasolines Hit the Market

This week, the nation's motorists are being offered three new gasolines.

Sun Oil Co. and Tidewater Oil Co. are offering improved motor fuels while Continental Oil Co. is widening its market test of a superpremium fuel to four new states.

Sun Oil Co.'s new gasoline is said to "eliminate stalling, prevent spark plug fouling, and cut down on fuel waste."

To accomplish this, Sun has introduced "premium-priced" additives into its basic fuel. (Sun's basic fuel is actually a regular-grade gasoline, which is blended with an octane concentrate to provide five higher grades through the medium of a custom-blending pump.)

The additives are also said to protect fueling systems against deposits and guard valves and cylinders against power-robbing gum and carbon.

There is no increase in the octane level of the basic fuel. In fact, Sun has been rumored to be developing a basic fuel with a lower octane level than its present product.

Sun denies this, however, claiming that its refineries are not geared to produce a lower grade of regular gasoline without expensive changes in operation.

Tidewater Oil Co. says its newly introduced gasoline "prevents 'power clog' caused by start-and-stop traffic."

The new gasoline follows 15 months of research by Tidewater and Du Pont scientists, says Tidewater. The result was the development of "MS-3, a new component that helps prevent the formation of gums and other harmful deposits in the carburetor and fuel system."

Such deposits are particularly troublesome in cars that must be subjected to start-and-stop driving, says the company.

Tidewater introduced the Du Pont additive into both its premium and regular gasolines on the West Coast.

In the third new-gasoline development, Continental Oil Co. introduced its superpremium fuel to Midwest motorists.

Called "Conoco Superpremium" the gasoline is being offered in Iowa, Nebraska, Kansas, and Missouri. Its octane level is 101.5, which places it right in the center of the current range of superpremium fuels offered by other refiners—from 100.3-octane to 102.9-octane, according to Ethyl Corp.'s March survey.

For the past three years, Continental has been testing its third grade of gasoline at 24 service stations in Houston. Only this month did it decide to expand the test.

Continental is still undecided about selling the higher-grade fuel throughout its 25-state territory. It will be a year before it makes up its mind.

Esso Introduces New Motor Oil

Radioactive tracers were used to keep track of the molecules in a new motor oil to be put on the market by Esso Standard division of Humble Oil & Refining Co. next week.

The formula for the oil, called "New Uniflo," is so complex, says Esso, that an IBM 704 was needed to prepare it.

Research on the oil took 2½ years and included a road test by 150 taxicabs in New York City.

The heart of the oil's formula is a complex polymer on which most of the computer and atomic activity was centered. To make certain that the ingredients in this polymer react in correct sequence, Esso engineers tagged them with Carbon 14—a radioisotope.

This research confirmed the 704's predictions.

The new oil attacks sludge deposits and breaks them into minute particles far smaller than normally found in an oil, says Esso.

These particules, less than a millionth of an inch wide, are kept floating in suspension, away from engine parts they would otherwise damage. When the oil is changed, the sludge is drained off with the oil.

The problem of sludge is particularly apparent in the stop-and-go driving of taxicabs, Esso says. In such driving, one dangerous type of sludge, which resembles thick mayonnaise, can quickly gum up engine parts.

Standard Oil Company of California, Rig LAI #173, Inglewood.

Servco Pilot Mill mills up 170′ of 5½″, 15.5#, J55 casing in 16 hours, 50 minutes!

In this Standard string, two separate sections of 7″, J55 casing, totalling 170′, were swaged to 5½″, 15.5# and run opposite independent producing zones. After cementing and testing, the swaged areas were milled out with one 6½″ Servco Pilot Mill in 16 hours, 50 minutes!

Prior to development of Servcoloy*, costly, slow-milling aluminum alloy casing would have been used in the reduced sections. Substituting steel casing resulted in important savings both in casing costs and rig time.

Use Servcoloy on your next milling job. Cutting rates possible with this unique milling material can't be matched. Your nearest Servco office will give you the full story.

*U.S. PAT. NO. 2,633,638

Steel shavings taken from the shaker prove Servcoloy efficiency.

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BANK

What's New
IN MARKETING

Major oil companies who sell on a private-brand basis in North Carolina may well eliminate the independent refiner and leave the independent marketer "with only one source of supply," Republic Oil Refining Co. charged last week.

The company said it has had to revise its present wholesale pricing policy in the state because of the "present chaotic conditions." (Last week a price war erupted again in Raleigh, where major-brand prices for regular gasoline dropped to 25.9¢ a gal.)

Later, Republic said that it was eliminating its temporary competitive allowances, because they "afford no long-range benefits, but only prolong an undesirable situation."

•

Oil marketing's clean bill of health from Idaho investigators was called a "whitewash" last week by Attorney General Frank Benson, long a critic of Idaho gasoline prices. He said one reason he plans to run for U.S. Senate this fall is "to start a senatorial investigation of the price fixing of gasoline."

Nevertheless, the Idaho governor's Special Committee on the Gasoline Industry found "no apparent collusion on prices by the oil companies."

Why price wars? The answer's the same in Idaho as anywhere: It's a "problem of surplus gasoline," the committee concluded.

•

A test shows that electric heating is getting more competitive. In a recent tryout in a Buffalo (N.Y.) elementary school, electricity turned out to be only 1.63 times as costly as gas heating.

In a similar comparative test last year, electricity was 2.19 times as costly as gas.

•

Dealers in Washington want the whole state to be one "trading area." Their proposal is now being studied by a subcommittee of the state legislature.

To end local price wars, the dealers also want to license all suppliers, wholesalers, and retailers, and to outlaw the alleged secret rebates that take place among them. Violators would lose their licenses.

TOLAD
FUEL ADDITIVE

a NEW Tretolite product

IMPROVES FUEL "COLOR STABILITY" AND REDUCES RESIDUE AT LOWER COST

TOLAD* Fuel Additive formulations have been thoroughly tested in Tretolite laboratories and spot commercial applications for over two years. In test after test, TOLAD has improved fuel oil color stability, dispersed insoluble residue, and reduced sludging characteristics, and has done so at a lower cost than the commercial additive which it replaced.

FURNACE FUELS

TOLAD Fuel Additive enhances the salability of domestic furnace fuels in storage by inhibiting the formation of insoluble residue, preventing the formation of sludge and retarding color degradation.

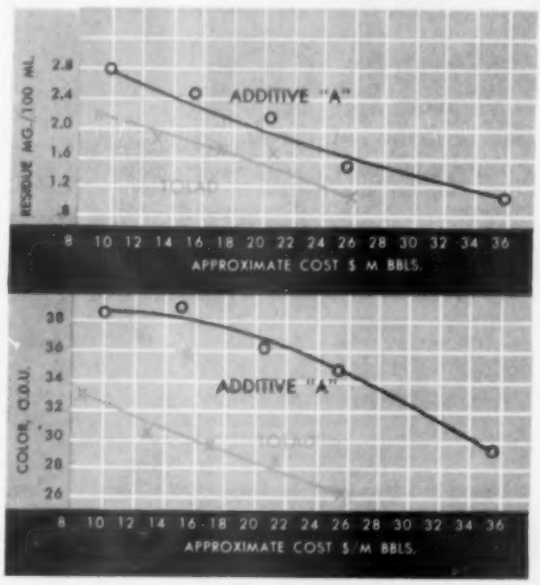
DIESEL FUELS

Diesel fuel sludge is the prime cause of plugging in fuel filters, injection systems and burner nozzles. TOLAD Fuel Additive improves the performance characteristics of diesel fuels by preventing the formation of sludge.

Whenever fuel deterioration is caused by long storage periods, TOLAD additive will *economically* help to maintain fuel quality and salability.

For complete information, ask your Tretolite refinery service engineer, or write to

The graphs illustrate TOLAD'S ability to improve color and residue characteristics of fuel in storage more economically. In these tests, a commercial furnace oil was subjected to a 12 week 110°F oven storage test. TOLAD was added to one sample, another commercial additive to the other. At every reading, TOLAD effected the desired color or residue characteristics at a lower per-barrel-cost.



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FA-60-8

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PERU: Oilfield Import, S. A., Apartado 71, Talara
TRINIDAD: Neal and Massy, Ltd., P. O. Box 544, Port of Spain

A. C. POLK has been appointed executive vice-president and general manager of the Dowell Division of Dow Chemical Co., in Tulsa. He was formerly vice-president and general manager. **John G. Staudt**, Dowell's former executive vice-president, moves to Cleveland as president of Dobeckmun Co. Division of Dow Chemical. Polk with Dowell since 1941, became assistant manager of the division in 1948. He was elected a director in 1950, and was appointed general manager in 1951. In 1952, he became a vice-president. **A. F. Beale, Jr.**, is Dowell's new director of research, with offices in Tulsa. He succeeds **Dr. W. W. Love**, who becomes research consultant. Beale, who has been with Dowell since 1953, was formerly director of chemical research.

H. Bottomley

A. C. Polk

HAROLD BOTTOMLEY is the new head of Vitro Engineering Co.'s Treco division, which was The Refinery Engineering Co. before it merged with Vitro last year. In his new position, he is regional manager of Vitro Engineering, and will be in charge of the Tulsa office, which handle Treco's engineering, construction, and sales activities. Bottomley was a vice-president of The Refinery Engineering Co. from 1947 to 1953, when he resigned to become a consultant. He has been acting as a consultant to Treco since it merged with Vitro Engineering. Bottomley takes over the responsibilities formerly handled by the Treco president, a position which was recently dissolved. **Woodman Perine**, the former Treco president, continues as vice-president of Vitro Corp. of America in charge of its technical services and products group, which includes Vitro Engineering.

BERNARD F. KLEIN is head of the newly created industrial division of Wade Advertising, Los Angeles. Klein, who was formerly vice-president of Heintz & Co., Los Angeles advertising agency, has been account supervisor for the Halliburton Oil Well Cementing Co. account for the past seven years.

FRED T. MILLER has been named vice-president and general manager of the new Borg-Warner Controls division, recently established by Borg-Warner Corp. in Santa Ana, Calif. Miller was formerly technical assistant to the president of Weston Hydraulics, Ltd., a Borg-Warner subsidiary in the field of hydraulic and pneumatic power equipment for the aircraft and space industry. **Ira E. Weston**, chairman and chief executive officer of Weston Hydraulics, becomes chairman of the new division, and **Fred O. Hosterman**, president and general manager of Weston, becomes president and chief executive officer. Both assignments are in addition to their present duties. Borg-Warner Controls will take over the personnel, products, and existing facilities of the parent company's BJ Electronics plant in Santa Ana.

HARVEY C. HOPKINS has been elected to the newly created position of vice-president for purchasing of ACF Industries, Inc., New York. He will coordinate purchasing activities of the company's operating divisions. Hopkins, who has 35 years' experience in research, manufacturing, purchasing, and traffic, has been president of King Container Corp., in New Jersey.

A. G. Petkus

J. C. Reed

J. R. Britt

C. B. Robbins

FOUR EXECUTIVES of Procon Inc., subsidiary of Universal Oil Products Co., Des Plaines, Ill., have been promoted to new positions. **James C. Reed** was named executive vice-president; **Alexander G. Petkus** senior vice-president, coordination, engineering, and drafting; **James R. Britt** vice-president, European operations; and **Charles B. Robbins**, vice-president, staff. Reed joined UOP in 1939 and transferred to Procon in 1950, when the subsidiary was formed. He was most recently vice-president in charge of construction. Petkus was with UOP from 1937 to 1950, when he became chief coordinating engineer for Procon. He was elected vice-president in charge of engineering in 1952. Britt, who joined Procon in 1955, became general manager of Procon (Great Britain), Ltd., in 1957. Robbins, who was most recently assistant to the Procon president, joined the subsidiary in 1951.

JIM FLEMMONS moves up to assistant to the general manager of sales for Cardwell Mfg. Co., with offices in Wichita, Kan. He was formerly district sales representative for Cardwell's Oklahoma-Texas Panhandle area, in Oklahoma City. **Bob Hiller**, who has been with Cardwell for the past two years, succeeds Flemmons in Oklahoma City.

J. Flemmons

V. C. Horner

V. C. HORNER, vice-president of the Byron Jackson Division of Borg-Warner Corp., has been named to the newly created position of operations manager of the division's Jet Process section, with offices in Los Angeles. Horner, formerly sales manager of Byron Jackson Tools, Inc., was most recently general manager of BJ Electronics, in Santa Ana, Calif. Jet Process administers the licensing of the use of the patented shaped explosive charge in wells throughout the Western Hemisphere.

DR. GEORGE MATSUYAMA has been appointed senior chemist in the electrochemistry group of the scientific and process instruments division of Beckman Instruments, Inc., Fullerton, Calif. In 1952, he joined the research department of Union Oil Co. of California as a chemist, and advanced to research associate before leaving Union.

D. J. Sargent

J. Banister

D. J. SARGENT is the new assistant manager of Halliburton Oil Well Cementing Co.'s New Orleans (La.) division, and **JOHN BANISTER** is the new assistant manager of the Lubbock (Tex.) division. Sargent, who has been with Halliburton since 1937, was formerly a regional training supervisor. Banister succeeds **Leroy Muse**, who has been named testing and tools superintendent for Halliburton's Oklahoma City division. **R. W. Graham** succeeds Banister as division engineer at Denver. Graham was named assistant division engineer at Denver last year.

Remember THESE TWO

in PW early last year?

Along with three others carried by two other McGraw-Hill publications, they **EARNED** for **PETE WEAVER,** chief of Petroleum Week's Mexico City News Bureau, the **E. W. FAIRCHILD AWARD** for the best business news reporting from abroad in any medium during the past year. This award, which carries with it a $500 cash prize, is given by the Overseas Press Club for the best reporting in daily newspapers, magazines, radio and television.

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Conform to Fed. Spec. GGG-C-771b Type II—Class 1—enclosed feed mechanism

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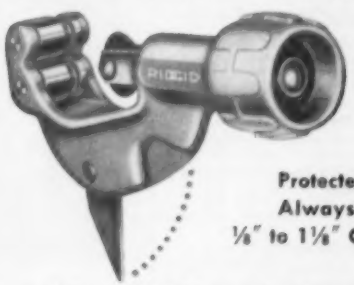

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DEPT/Personals

O. P. THOMAS has been elected executive vice-president and a director of Sinclair Oil Corp., New York. He succeeds **Harry Jeffries,** who continues as a director and as chairman of the finance committee. Thomas has been a Sinclair vice-president since 1957. **C. F. McCoy,** vice-president and administrative coordinator for Sinclair Oil & Gas Co., Tulsa, a subsidiary, has been elected a director of that company. McCoy was vice-president and a director of Sinclair Pipe Line Co., Independence, Kan., before joining Sinclair Oil & Gas.

O. P. Thomas

M. J. Frazier

MALCOLM J. FRAZIER has been elected secretary-treasurer and a director of Sinclair Pipe Line Co., Independence, Kan., and **C. T. Carter** has been elected a director. Frazier, who was most recently treasurer of Sinclair Research Laboratories, Inc., at Harvey, Ill., succeeds the late **John P. Main.** Carter, Sinclair Pipe Line's director of engineering, has been with the Sinclair organization since 1938.

H. D. MOORE is the new president of Derby Refining Co., division of Colorado Oil & Gas Corp., in Wichita, Kan., and has also been named a director of the parent company. He is resigning as vice-president and executive assistant to the president of Sinclair Oil Corp.

FOUR NEW DIRECTORS of the Western Petroleum Refiners Assn. elected at its annual meeting, at San Antonio, Tex., last week are: **R. D. Bent,** Atlantic Refining Co., Philadelphia; **C. Ducommun,** Standard Oil Co. (Ind.), Chicago; **H. D. Moore,** Derby Refining Co., Wichita, Kan.; and James Van Felt, Berry Refining Co., Chicago. **J. Carthaus,** president of Great Northern Oil Co., St. Paul, Minn., was reelected president. Reelected vice-presidents of WPRA are: **Rexford S. Blazer,** Allied Oil Co., Ashland, Ky.; **Walter Famariss, Jr.,** Famariss Oil & Refining Co., Hobbs, N.M.; **J. Porter Langfitt,** Pure Oil Co., Chicago; **C. C. Tate,** Phillips Petroleum Co., Bartlesville, Okla.; and **J. A. Vickers,** Vickers Petroleum Co., Denver.

NETUM A. STEED, Taubert & Steed Drilling Co., Wichita Falls, Tex., is the new president of the North Texas Oil & Gas Assn. **David A. Kimbell,** Alan Drilling Co., Wichita Falls, is the association's new first vice-president, and **George W. Graham,** independent in Wichita Falls, is the new second vice-president.

JAMES FITCHETTE is the new manager of the public relations division of Phillips Petroleum Co., Bartlesville, Okla. Fitchette, who joined Phillips in 1947, was formerly an advertising copy chief at J. Walter Thompson, New York advertising agency.

H. R. ROHWEDDER has been named director of operations for Natural Gas Pipeline Co. of America, Peoples Gulf Coast Natural Gas Pipeline Co., and their affiliates, with offices in Chicago. He succeeds **W. T. Bulla,** who has retired. Rohwedder joined the gas transmission companies in 1930 during the construction of Natural's Texas-to-Chicago pipeline. Since that time he has held several supervisory positions, and has been superintendent of compressor stations for Peoples Gulf Coast, which was formerly Texas Illinois Natural Gas Pipeline Co.

JOHN R. BLEWER has joined Texas Gas Transmission Corp., as director of public relations, with offices in Owensboro, Ky. He was formerly manager of financial relations for Bozell & Jacobs, Inc., public relations and advertising counsel for Texas Gas.

JAMES N. GORRINGE is the new assistant manager of the employee relations department for Humble Oil & Refining Co., in Houston. He has been employee relations manager of the company's Esso Standard division since 1955. Before that he was coordinator of Esso's management development program.

W. B. MARTIN becomes manager of Quaker State Oil Refining Corp.'s Kansas City (Kan.) division, which covers Kansas and parts of Oklahoma and Missouri. He was formerly Quaker State's sales representative in Tulsa.

C. H. Sommer C. A. Thomas E. M. Queeny

CHARLES H. SOMMER has been elected president, **CHARLES ALLEN THOMAS,** chairman, and **EDGAR M. QUEENY** has been reelected chairman of the finance committee, of Monsanto Chemical Co., St. Louis. At the same time, Sommer was also elected chairman of the executive committee and a member of the finance committee. Sommer, formerly executive vice-president, succeeds Thomas, who has been president since 1951, and Thomas succeeds Queeny, who has been chairman since 1943. Queeny also continues as a director and member of the executive committee, and Sommer and Thomas as directors.

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SIE

E. J. BASSETT, vice-president of Sinclair Refining Co., is its new general sales manager, with offices in New York. He was formerly vice-president in charge of Sinclair's western region, with offices in Kansas City, Mo. **Harry H. Young,** formerly central region vice-president, in Chicago, becomes western region sales manager. He will remain in Chicago, and will be responsible for an enlarged territory, including the central, Great Lakes, western, southwestern, and Rocky Mountain divisions.

E. J. Bassett

G. G. Biggar

G. GORDON BIGGAR has been named vice-president in charge of public relations for Shell Oil Co., New York. He succeeds **H. L. Curtis,** a Shell vice-president since 1955, who is retiring. Biggar, who has been with Shell since 1929, was named manager of the public relations department in 1952.

A. R. REHRIG moves up to manager of market development in the sales and development division of Phillips Petroleum Co.'s international department, in New York. He was most recently technical assistant to Phillips' manager of manufacturing. Rehrig joined the company in 1941, and in 1955 was on a loan to the oil and gas division of the Dept. of Interior as a specialist on refining.

A. L. HILL moves up to general manager of production and exploration for El Paso Natural Gas Co., El Paso, Tex. He was formerly manager of geological and reservoir engineering. **Warren L. Taylor** has been promoted to manager of geological and exploration operations; **A. M. Derrick** to manager of reservoir engineering; and **L. G. Truby, Jr.,** to manager of production. New division superintendents of geological and exploration operations are **Robert N. Richey,** Salt Lake City, Utah; **D. N. Canfield,** Farmington, N.M.; **A. E. Miller, Jr.,** Amarillo, Tex., and **Hal S. Dean,** Midland, Tex.

J. M. (Jim) RIDDELL, Colorado district marketing manager for Gulf Oil Corp., in Denver, becomes first vice-president of the Colorado Petroleum Council. He succeeds **Don Gilkison,** who leaves Gulf at Denver to become area manager for Western Gulf Oil Co., with offices in Los Angeles. The council is a state-wide volunteer organization conducting a public and governmental relations program in behalf of all segments of the petroleum industry.

HOMER J. STIMSON has been promoted to production superintendent in charge of operations on the Gulf Coast for Ada Oil Co., Houston. Stimson was formerly a petroleum engineer for Ada.

RUSSELL K. SCHULZE becomes manager of Shell Oil Co.'s West Coast pipeline department, at Los Angeles. Schulze, who became assistant manager of operations for that department last year, succeeds **M. C. Alcorn,** who is retiring.

E. W. McNEALY becomes manager of the Port Arthur (Tex.) refinery of Texaco Inc. McNealy, formerly general superintendent of that refinery, succeeds **Henry Flynn,** who was recently named general manager of the domestic refining department in New York. **Jack C. Williams,** formerly supervisor of the department's process and production division, succeeds McNealy as general superintendent at Port Arthur.

E. W. McNealy

H. F. Nabors

H. F. NABORS moves up to the newly created position of manager of production in Continental Oil Co.'s foreign department, with offices in New York. He was formerly general manager of Conoco's central region, at Oklahoma City. Nabors, who joined Conoco in 1935, became production manager of the southern region, at Houston, in 1951. In 1955 he moved to Oklahoma City as assistant general manager of the central region, a position he held until he became general manager there in 1957.

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Your Mack branch or distributor will be glad to show you why Mack trucks can save you plenty in terms of downtime, delays and headaches. Call him today. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ont.

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Big load is winched aboard. A Mack B-61 Model pulls derrick foundation onto low-boy trailer for move to next drill site.

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How Can We Be So Misunderstood?

IT'S A LITTLE DIFFICULT to understand how some trade association officials can have any doubt as to how oil publications stand on percentage depletion.

PETROLEUM WEEK and other leaders in the field have been very pointed in their unyielding position on percentage depletion. But the president of the Texas Independent Producers & Royalty Owners Assn., Harry Jones, cast an unwarranted cloud over all oil publications on the depletion provision in a speech last week before the Gulf Coast District of the Petroleum Equipment Suppliers Assn.

He declared that our government has become unrealistic, and that public officials are so bemused by the phrase "public interest" that they attach it to every order detrimental to business. Jones likened their infatuation to "Caesar's dalliance with Cleopatra while termites undermined the Roman Empire," and said it has extended to some oil trade publications which, for instance, "shade their writing about the depletion provision so it can be read either way."

WE ARE IN THE DARK as to just which oil trade publications Mr. Jones has been reading, but we will open the files of PETROLEUM WEEK to the scrutiny of anyone who thinks our editorials on depletion have left any doubt as to our position.

PETROLEUM WEEK, like other forthright oil publications, is as much a part of the petroleum industry as any trade association, oil company, manufacturer, supplier, or any other segment. What is good for the industry is good for PETROLEUM WEEK; and we not only think that percentage depletion is good for the industry, but that it is the stimulant that is necessary to keep the industry healthy and competitive.

Without the depletion provision, which recognizes the risk entailed by the petroleum industry in its search for oil and gas, enough risk capital would not be generated within the industry to make it self-sufficient in time of emergency. Without the provision or offsetting tax treatment there would be an undue increase in the price of crude and products.

ASIDE FROM BEING an unwarranted aspersion on the oil press, it is such comments as that of Mr. Jones, which, when taken out of context, are used with a great flourish by enemies of percentage depletion in Washington and elsewhere.

Again, Mr. Jones, PETROLEUM WEEK stands on its record.

HOW MANY PROGRESSIVE IDEAS CAN YOU SPOT AT THIS DOWELL FRAC JOB?

Fracturing has come a long way in the past 10 years. And new ideas continue to improve this method of well stimulation. Pictured above are just four of the contributions Dowell has made to help you get more oil through better fracturing. *Allison aircraft engine-powered pumpers*—compact, powerful. *Remote control panels*—for safer, exacting control of the job. At the well, the special *frac header*—for more safety, efficiency. The new *radio helmets*—for even better control of the job. Not shown, but also important: *Abrasijet,** abrasive perforating service—to reduce breakdown pressures; and the *"Frac Guide"** —for really precise engineering of treatments. New ideas . . . more for your money . . . *dial Dowell.* Dowell, Tulsa 1, Okla.

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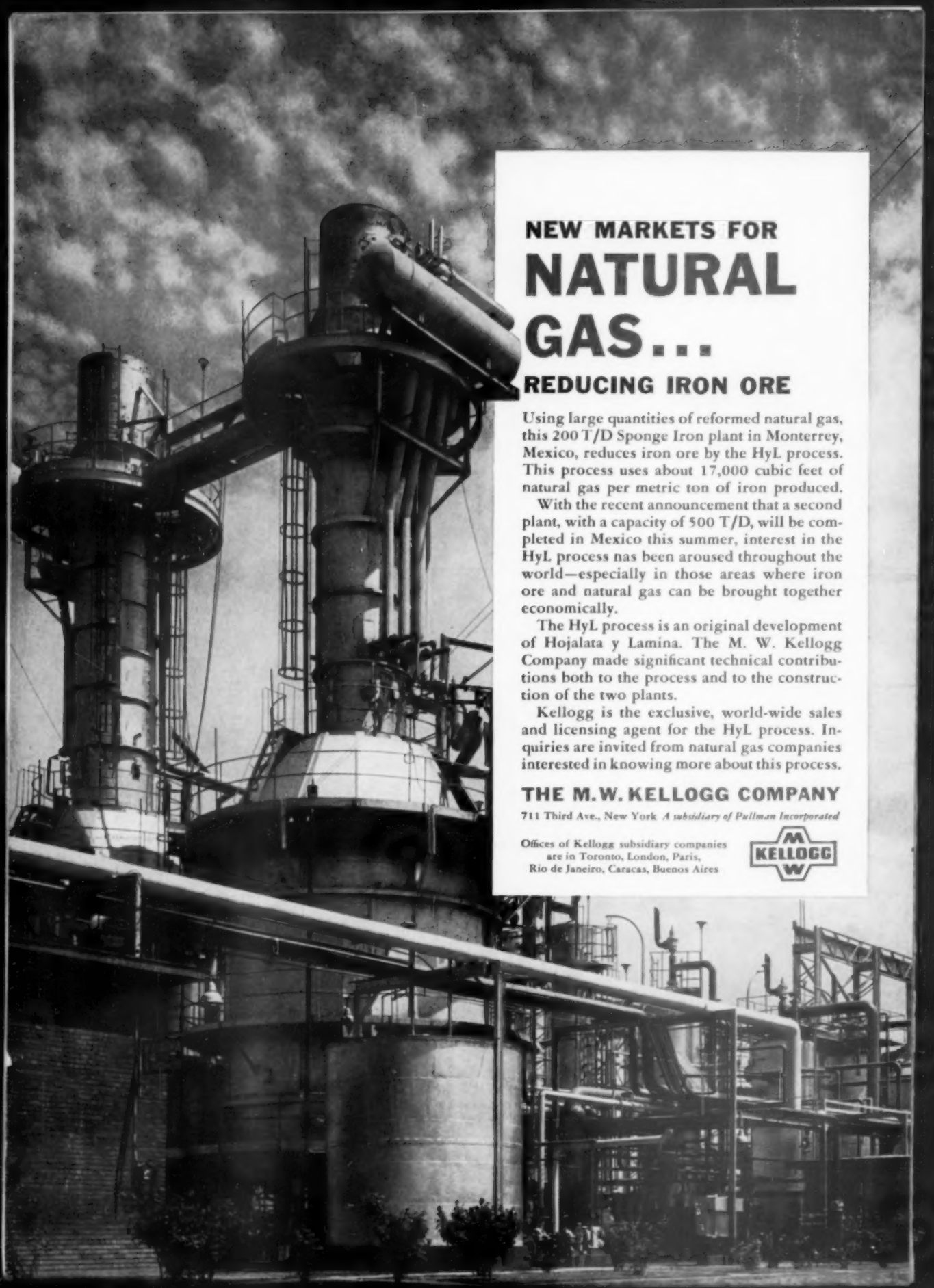

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With the recent announcement that a second plant, with a capacity of 500 T/D, will be completed in Mexico this summer, interest in the HyL process nas been aroused throughout the world—especially in those areas where iron ore and natural gas can be brought together economically.

The HyL process is an original development of Hojalata y Lamina. The M. W. Kellogg Company made significant technical contributions both to the process and to the construction of the two plants.

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